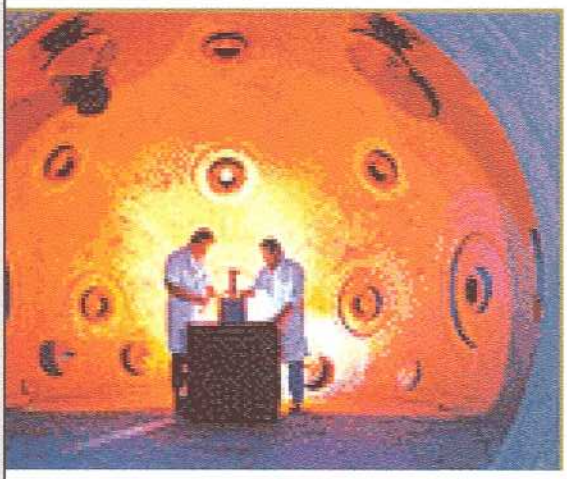
DEFENSE NUCLEAR FACILITIES SAFETY BOARD

FY 2005 PERFORMANCE AND ACCOUNTABILITY REPORT



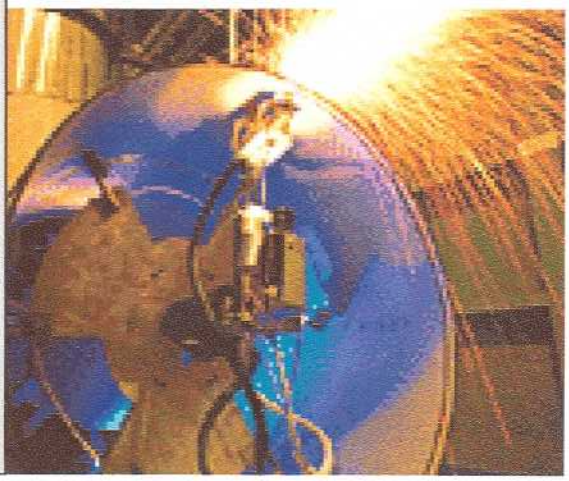


TABLE OF CONTENTS

Chapter 1: Management's Discussion and Analysis

Chapter 2: Program Performance

Chapter 3: Auditor's Reports and Financial Statements

Appendices

Chapter 1
Management's Discussion and Analysis

Chairman's Message

On behalf of the Members and staff of the Defense Nuclear Facilities Safety Board (DNFSB), I am pleased to submit our *Performance and Accountability Report* (PAR) for FY 2005. FY 2004 was the first year that the Board was required to prepare and submit a PAR report. Building on our FY 2004 experience, the Board has applied many of the "lessons learned" from last year's PAR review to improve FY 2005 operations and our PAR preparation effort. The DNFSB has prepared and published previous Annual Performance Reports as required by the Government Performance and Results Act of 1993 (GPRA), and comprehensive Annual Reports to the Congress covering the DNFSB's health and safety oversight mission since 1990.

The primary purpose for the DNFSB's existence is to ensure adequate public health and safety and to prevent devastating accidents from becoming a reality in the Department of Energy's (DOE) defense nuclear facilities and operations. Having to abandon or extensively rebuild a newly constructed facility such as the DOE Waste Treatment Plant at the Hanford Site in Washington, costing billions of dollars due to an undiagnosed safety flaw in the design or construction process would be inexcusable. Unimaginable would be an accidental detonation of a nuclear weapon in the evaluation, maintenance, or dismantlement process, resulting in catastrophic impacts on lives and property, as well as on our Nation's nuclear deterrent capability. The DNFSB is the last line of defense in preventing serious safety vulnerabilities and tragic accidents from occurring in very complex, dangerous DOE programs.

During FY 2005, the DNFSB continued to make significant progress in ensuring that the public and the workers at or near DOE defense nuclear facilities are adequately protected. Considering that the DNFSB is a small agency with an employment ceiling of 100 FTEs and new budget authority of $20.1 million in FY 2005, I am proud to recognize the sustained and dedicated effort of our staff. The detailed performance reports that appear later in this document attest to the accomplishments of our small but highly talented staff. Given the scope and significance of our health and safety oversight responsibilities, the performance accomplishments far exceed the level of resources invested. Based on personal observation and reasonable assurances provided by internal managers, I believe that the public resources entrusted to the DNFSB are well managed and wisely used. However, more work needs to be done to bring the Board into full, procedural compliance with the plethora of administrative requirements in the Financial Reporting and Information Technology (IT) areas as time and resources permit.

The future holds many managerial challenges for the DNFSB, both in terms of technically complex health and safety issues involving the disassembly, refurbishing, reassembly, and re-certifying nuclear weapons and components, as well the review of new DOE defense nuclear facilities in the critical design and construction phases. Moreover, the fiscal challenges involving adequate funding for oversight activities and human capital issues will become critical to the viability of future DNFSB operations.

The DNFSB is committed to improving the safety, security, and reliability at our Country's most sensitive defense nuclear facilities where our nuclear arsenal is maintained, and hazardous nuclear materials and components are placed in more secure and stable storage configurations. Our standard of excellence in carrying out this important mission will mirror the best of American excellence, values, and ideals. Our Nation deserves nothing less.

A.J. Eggenberger, Chairman

April 7, 2006

INTRODUCTION

This Performance and Accountability Report (PAR) covers the DNFSB's oversight activities and associated resource expenditures for the period from October 1, 2004 through September 30, 2005 (FY 2005). This report was prepared pursuant to the requirements of the Accountability of Tax Dollars Act of 2002 and Office of Management and Budget (OMB) instructions on the preparation of PAR reports. FY 2005 is the second year that the DNFSB has prepared and published a PAR report.

The Government Performance and Results Act of 1993 (GPRA) requires each agency to prepare and submit a strategic plan establishing long-term programmatic, policy, and management goals. The Defense Nuclear Facilities Safety Board's (DNFSB) *Strategic Plan for FY 2003-2009* has been made available on the Internet at www.dnfsb.gov. In addition, agencies are also required to develop a performance budget with annual performance objectives which indicate the progress toward achievement of the strategic plan's goals and objectives. The DNFSB's performance objectives for FY 2006 and FY 2007, as well as representative accomplishments for FY 2002 through 2004, are included in its FY 2007 Budget Request to the Congress in accordance with the requirements of OMB Circular A-11. The final GPRA requirement to submit an annual performance report is included in this PAR.

Chapter 1, *Management Discussion and Analysis*, provides an overview of DNFSB operations, and is divided into five sections: *About the DNFSB* describes the agency's mission, organization structure, and the four major performance goals of the DNFSB; *Future Challenges* includes a review of upcoming issues; *Program Performance Overview* discusses the DNFSB's success in accomplishing its performance goals; *Financial Performance Overview* provides highlights of DNFSB's financial position and audit results; and *Systems, Controls, and Legal Compliance* describes the agency's compliance with key legal requirements such as the Federal Information Security Management Act (FISMA) and internal controls.

ABOUT THE DNFSB

The DNFSB, an independent executive branch agency, is charged with providing technical safety oversight of the Department of Energy's (DOE) defense nuclear facilities and activities in order to protect the health and safety of the public and workers. Congress established the DNFSB in September 1988 in response to growing concerns about the level of health and safety protection that DOE was providing the public and workers at defense nuclear facilities. In so doing, Congress sought to provide the public with added assurance that the defense nuclear facilities required to maintain the nation's nuclear weapons stockpile are being safely designed, constructed, operated, and decommissioned. The DNFSB commenced operations in October 1989 with the Senate confirmation of the five Board Members.

Organization

The DNFSB is headed by five full-time Board Members who, by statute, must be respected experts in the field of nuclear safety with demonstrated competence and knowledge relative to independent investigationsand oversight. Two members of the DNFSB are designated by the President to serve as

Chairman and Vice Chairman respectively. Each DNFSB member is appointed by the President, with the advice and consent of the Senate, and serves a term of five years. The Chairman serves as the chief executive officer of the DNFSB.

The DNFSB's headquarters facility is located in downtown Washington, D.C., in proximity to the DOE headquarters facility. Our headquarters location was selected to facilitate the interface between DNFSB and DOE management officials and staff, and has proven to be beneficial for the timely exchange of information as the DNFSB conducts its independent oversight mission.

The DNFSB maintains its on-site safety oversight of defense nuclear facilities by assigning experienced technical staff members to full-time duty at priority DOE defense nuclear sites. As of September 30, 2005, eleven full–time site representatives were stationed at the following DOE sites:

- Pantex Plant
- Hanford Site
- Savannah River Site (SRS)
- Y-12 National Security Complex at Oak Ridge
- Los Alamos National Laboratory (LANL)
- Lawrence Livermore National Laboratory (LLNL)

The Site Representatives Program provides a cost-effective means for the DNFSB to closely monitor DOE activities, and to identify health and safety concerns promptly by having on-site staff conducting firsthand assessments of nuclear safety management at the priority sites to which they have been assigned. Site representatives regularly interact with the public, union members, congressional staff members, and public officials from federal, state, and local agencies.

The DNFSB's budget for FY 2005 was $20.1 million and 100 full-time equivalent staff. The DNFSB's health and safety oversight activities are funded exclusively from a direct appropriation included in the annual Energy and Water Development Appropriation Act. No other cost recovery mechanisms such as fees, annual charges, or reimbursement from the DOE are authorized for the DNFSB.

Safety Oversight Responsibilities

The DNFSB's specific duties and responsibilities to protect the health and safety of the public and the workers at DOE's defense nuclear facilities are delineated in its enabling statute, 42 U.S.C. § 2286, *et. seq.*, in which the DNFSB shall:

1. Review and evaluate the content and implementation of the standards relating to the design, construction, operation, and decommissioning of DOE's defense nuclear facilities and recommend to the Secretary of Energy those specific measures that should be adopted to ensure that public health and safety are adequately protected.

2. Investigate any event or practice at a DOE defense nuclear facility which the DNFSB determines has adversely affected, or may adversely affect, public health and safety.

3. Have access to and may systematically analyze design and operational data, including safety analysis reports, from DOE defense nuclear facilities.

4. Review the design and construction of new DOE defense nuclear facilities and recommend to the Secretary of Energy such modifications of the design considered necessary to ensure adequate protection of public health and safety.

5. Make such recommendations to the Secretary of Energy with respect to DOE defense nuclear facilities, including the assembly, disassembly, and testing of nuclear weapons, operations of such facilities, standards, and research needs, as determined to be necessary to ensure adequate protection of public health and safety.

In support of this mission, the DNFSB has identified the following four interdependent, strategic areas of concentration and has organized its technical staff according to these strategic areas:

AREA 1. **NUCLEAR WEAPON OPERATIONS**: DOE operations that directly support the nuclear stockpile and defense nuclear research.

AREA 2. **NUCLEAR MATERIAL PROCESSING AND STABILIZATION:** The processing, stabilization, and disposition of DOE defense nuclear materials and facilities.

AREA 3. **NUCLEAR FACILITIES DESIGN AND INFRASTRUCTURE:** Reviewing the design and construction of new DOE defense nuclear facilities, and major modifications to existing facilities.

AREA 4. **NUCLEAR SAFETY PROGRAMS AND ANALYSIS:** How DOE regulations, requirements, and guidance affecting public or worker health and safety are developed, implemented, and maintained; and safety programs at defense nuclear facilities are established and implemented.

The FY 2005 performance goals and accomplishments associated with each of these areas of concentration will be discussed further in Chapter 2 of this report.

FUTURE CHALLENGES

The DNFSB is facing a number of significant technical and fiscal challenges that will impact the accomplishment of its independent health and safety oversight mission. With its current allocation of resources, the DNFSB is pressed to keep pace with the significant increase in new defense nuclear facilities in the design and construction phase. DOE has more than 20 new design and construction projects currently underway or planned for the near future.

Second, DOE's nuclear weapons stockpile stewardship and management operations require particular DNFSB oversight attention due to the hazards associated with the nuclear explosive activities and experiments involving collocated high explosives and nuclear material. In addition to the criticality safety concerns, the DNFSB is especially sensitive to the safety risks due to the potential for explosive dispersal of radioactive materials or inadvertent nuclear detonation.

A third challenge is maintaining a determined, focused, and well-executed human capital program. Because the DNFSB's health and safety recommendations and other advisories to the Secretary of Energy are based on in-depth technical information and detailed safety analyses, the recruitment and retention of scientific and technical staff members with outstanding qualifications continues to be critical to the successful accomplishment of the DNFSB's mission. The loss of technical competence due to retirements must be countered with an aggressive recruiting campaign for new engineering talent at all levels including entry level engineers.

Oversight of New DOE Design and Construction Projects

The DNFSB is required by law to review the design and construction of projects to ensure the safety of the public and workers is addressed early in the design process. The DNFSB will continue to expend considerable resources to review the ongoing design effort as well as the construction activities at new DOE defense nuclear facilities.

DOE has more than 20 new design and construction projects currently underway. The DNFSB plans to concentrate its oversight attention on the projects with high risk, significance, and complexity. One prominent example of a high risk, new facility undergoing both design and construction is the Waste Treatment Plant (WTP) in Richland, Washington. The WTP project consists of three major nuclear facilities to pretreat and vitrify high-level waste stored in underground tanks at Hanford.

WTP is a complex, high risk program that has constantly changing design and construction parameters and will require more than 15 years to complete. This project is critically important for successful cleanup of Hanford. The Secretary of Energy has recognized the health and safety importance of the Board's past work in identifying unresolved seismic issues and the potential accumulation of explosive hydrogen gas in current piping vessel designs, and relies heavily on the Board to ensure that safety features are incorporated in the WTP design, based on extensive reviews by the Board. These design and construction reviews are resource intensive and time consuming, but are key in preventing safety flaws in design and construction that could render a newly constructed facility unusable.

Safety of Nuclear Weapon Activities

To maintain this Nation's nuclear deterrent without the design of new weapons, DOE is accelerating its programs to extend the life of weapons in the enduring stockpile, requiring more operations to disassemble, refurbish, and reassemble nuclear weapons and components. The dominant accident in the nuclear weapons complex is an inadvertent nuclear detonation at either the Pantex Plant in Texas during nuclear explosive operations, or the Nevada Test Site while working on a damaged nuclear weapon or an improvised nuclear device. The DNFSB must provide comprehensive and effective oversight to ensure an accident with the absolutely unacceptable consequence of a nuclear detonation never occurs.

It is anticipated that the current operational tempo at both the Pantex Plant and the Y-12 Plant will increase due to increased requirements to surveil our aging nuclear weapons stockpile and pressure to dismantle our retired nuclear weapons as we draw down our stockpile.

To effectively oversee the health and safety issues of nuclear weapon activities, the DNFSB will need to augment its technical staff with subject matter experts and field site representatives, as well as contract for unique specialized technical expertise (e.g., in-depth knowledge of a particular weapon design). In FY 2004, the DNFSB established a site office at the Lawrence Livermore National Laboratory, and assigned replacement site representatives to monitor nuclear weapon-related activities at the Pantex Plant (Texas), the Oak Ridge Y-12 National Security Complex (Tennessee), and the Los Alamos National Laboratory (New Mexico). Staff rotations to these site offices continued in FY 2005.

Human Capital Initiatives

The means for an effective DNFSB oversight program begins with a determined, focused, and well-executed Human Capital Program. This program uses all available tools to attract and retain the technical talent necessary to accomplish the job that Congress requires the DNFSB to do. After years of careful recruiting and selection, the DNFSB's technical staff is composed of approximately 60 scientists and engineers with extensive backgrounds in technical disciplines such as nuclear-chemical processing, conduct of operations, general nuclear safety analysis, conventional and nuclear explosive technology and safety, nuclear weapons safety, storage of nuclear materials and nuclear criticality safety, and waste management. Essentially all of the technical staff have technical masters' degrees, and approximately 20 percent have doctoral degrees.

Because the DNFSB's health and safety recommendations and other advisories to the Secretary of Energy are based on in-depth technical information and detailed safety analyses, the recruitment and retention of scientific and technical staff members with outstanding qualifications continue to be critical to the successful accomplishment of the DNFSB's mission.

During FY 2005, the Board lost 14 staff due to retirement and attrition, including 9 engineers. As an oversight organization comprised of technical experts, the DNFSB must compensate for upcoming staff retirements that could reduce our technical capabilities by continuing to recruit experienced engineering talent. More than 17 percent of the DNFSB's technical staff and 33 percent of our senior executives are eligible for regular retirement today. In FY 2007, the number of technical staff eligible for retirement rises to 22 percent of our technical workforce.

In addition to continuing our recruitment of experienced engineering talent to fill immediate staff needs, the DNFSB also needs to recruit the next generation of engineers. The DNFSB developed and previously implemented a three-year Professional Development Program (PDP), to bring entry-level technical talent into professional positions within the DNFSB. Through a technical mentor, individuals are provided a series of individually tailored developmental assignments, formal academic schooling, and a one-year, hands-on field assignment. This is a highly competitive program designed to attract the next generation of scientific and technical talent to Federal service.

PROGRAM PERFORMANCE OVERVIEW

In establishing the DNFSB, Congress chose to establish an independent external oversight organization composed of technical experts in the field of nuclear health and safety. Therefore, the DNFSB was given specific oversight and advisory powers, as opposed to being an independent regulator of the DOE defense nuclear complex. In view of the DNFSB's enabling legislation and specific mission, the DNFSB must focus its expertise and limited resources on one goal:

> **The DNFSB will assist DOE in improving safety at existing and proposed defense nuclear facilities by identifying health and safety issues affecting the public and the workers, recommending actions to address these issues, and ensuring that corrective actions are completed.**

To achieve this general goal, the DNFSB has identified the following four interdependent, strategic areas of concentration and has developed performance goals and outcome objectives for each:

AREA 1. NUCLEAR WEAPON OPERATIONS

Performance Goal: DOE operations that directly support the nuclear stockpile and defense nuclear research are conducted in a manner that ensures adequate protection of the health and safety of the workers and the public.

Stockpile management is the term used to describe the industrial aspects of maintaining the U.S. nuclear weapons stockpile and complex. DNFSB oversight activities for this strategic area focus on assuring that current and planned operations at the Pantex Plant in Texas, the Y-12 National Security Complex in Tennessee, and tritium operations at the Savannah River Site in South Carolina are accomplished safely according to approved standards.

Also included in this strategic area is the DOE Stockpile Stewardship Program, which refers to activities carried out by DOE to ensure confidence in the safety, security, and reliability of nuclear weapons in the stockpile, in the absence of underground nuclear weapons testing. The DNFSB's oversight of the stockpile stewardship program is centered on assuring the safety of the research, development, manufacturing, and testing activities conducted at the Los Alamos National Laboratory in New Mexico, the Lawrence Livermore National Laboratory in California, the Nevada Test Site, and Sandia National Laboratories in New Mexico and California.

Outcome: DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the DNFSB, and the facilities are operated to approved safety standards, rules, orders, and directives. Follow-up technical evaluations of DOE's nuclear stockpile activities will verify necessary improvements in safety.

AREA 2. NUCLEAR MATERIAL PROCESSING AND STABILIZATION

Performance Goal: The processing, stabilization, and disposition of DOE defense nuclear materials and facilities are performed in a manner that ensures adequate protection of the health and safety of the workers and the public.

With the shutdown of major weapon production activities at defense nuclear facilities in the early 1990s, substantial quantities of plutonium, uranium, transuranic isotopes, and irradiated fuel have remained in storage for extended periods under potentially unsafe and deteriorating conditions. The DNFSB's focus in this strategic area is to aid DOE in identifying these excess materials and in reviewing DOE's plans/programs to stabilize the materials and place them in a safe configuration for storage pending future programmatic use or disposition.

DNFSB oversight in this area includes the retrieval, stabilization, and safe interim storage of spent nuclear fuel and sludges in the K-Basin at the Hanford Site in Washington, the Savannah River Site, and the Idaho National Laboratory. The DNFSB exercises oversight of the nuclear waste programs conducted at the Savannah River and Hanford sites, as well as the Waste Isolation Pilot Plant (WIPP) in New Mexico and the Idaho National Laboratory. The DNFSB will also provide health and safety oversight of DOE programs to safely deactivate and decommission facilities at the Hanford and Savannah River Sites, the Idaho National Laboratory, the Y-12 National Security Complex in Tennessee, the Fernald and Mound Sites in Ohio, and the Los Alamos and Lawrence Livermore National Laboratories in New Mexico and California.

Outcome: DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the DNFSB. Follow-up technical evaluations of DOE's nuclear materials management and facility disposition activities will verify necessary improvements in safety, as DOE meets its commitments to the DNFSB to stabilize and dispose of hazardous nuclear materials.

AREA 3. NUCLEAR FACILITIES DESIGN AND INFRASTRUCTURE

Performance Goal: New DOE defense nuclear facilities, and major modifications to existing facilities, are designed and constructed in a manner that ensures adequate protection of the health and safety of the workers and the public.

To ensure that safety is addressed early in the process, the DNFSB reviews the design and construction of new DOE defense nuclear facilities. These facilities must be designed and constructed in a manner that will support safe and efficient operations for 20 to 50 years. This requires a robust design process that will ensure appropriate safety controls are identified and properly implemented early in the process. The DNFSB's expectation is that the design and construction phases of defense nuclear facilities will be accomplished under approved nuclear codes and standards, and demonstrate clear and deliberate implementation of Integrated Safety Management (ISM) principles and core functions.

The DNFSB's reviews of the design and construction of major facilities and projects in this strategic area are resource intensive and time consuming, but they result in significant safety improvements. In recent years, there has been an increase in the number of new DOE projects, with more than 20 projects in the design and construction phase. Examples of these new projects include the Tritium Extraction Facility, currently under construction at the Savannah River Site; the Hanford Waste Treatment Plant, which is in the design and construction phase; the Highly Enriched Uranium Materials Facility, which is in both the design and construction phases at the Y-12 Site; and the Pit Disassembly and Conversion Facility, which is in the design stage at the Savannah River Site.

Outcome: DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the DNFSB. Follow-up technical evaluations will verify necessary safety improvements in the design and construction of DOE's new nuclear facilities and major modifications to existing facilities. New nuclear facility designs will meet acceptable safety standards.

AREA 4. NUCLEAR SAFETY PROGRAMS AND ANALYSIS

Performance Goal: DOE regulations, requirements, and guidance are developed, implemented, and maintained; and safety programs at defense nuclear facilities are established and implemented; as necessary to protect adequately the health and safety of the workers and the public.

The DNFSB's oversight effort in this area focuses on issues where a complex-wide perspective on health and safety issues across the DOE complex is required to identify and correct generic health and safety problems. Under the aegis of Integrated Safety Management (ISM),[1] significant resources are applied to areas such as the technical competence of DOE's Federal workforce, the efficiency of DOE's line management and safety oversight, and the development and implementation of ISM systems with particular focus on safety analyses and controls. Key supporting functional areas are also reviewed, such as quality assurance, nuclear criticality safety, and training and qualifications.

The DNFSB's reviews in this strategic area often build on data collected at the field level in the first three areas, integrating and analyzing the results to feed back key information that can be used to direct safety program improvement across multiple management lines. For example, at the DNFSB's urging, DOE issued a quality assurance improvement plan to strengthen the implementation of existing quality requirements for safety-related components and systems. Similarly, the DNFSB continues its efforts to ensure that DOE maintains a vigorous nuclear criticality safety infrastructure to support nuclear operations. The DNFSB has been instrumental in driving recent DOE efforts to verify that vital safety systems have been identified throughout the defense nuclear complex and that their condition is understood and controlled.

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

Outcome: DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the DNFSB. In addition, follow-up technical evaluations of DOE's safety programs at defense nuclear facilities will verify necessary improvements in safety, and effective implementation of ISM principles.

Interdependency of the Four Performance Goals:

The interdependence of these four strategic areas of concentration must be understood to appreciate the efficiency of the DNFSB's operating plan and corresponding organizational alignment. The "lessons learned" from the DNFSB's health and safety oversight activities crosscut into each of these four areas. Health and safety hazards identified in Nuclear Material Processing and Stabilization (Area 2) must be transferred to the Nuclear Weapon Operations (Area 1) to avoid or mitigate new remediation issues before they happen. Likewise, the lessons learned from Nuclear Facilities Design and Infrastructure (Area 3) must be shared with managers responsible for preparing and enforcing health and safety-related guidance, requirements, and regulations in Nuclear Safety Programs and Analysis (Area 4).

For example, in order to oversee safety at the Y-12 National Security Complex, the DNFSB must assess the safety of hazardous activities that support the nuclear weapons stockpile (Area 1). To accomplish its general goal, the DNFSB must also assess processing and stabilization of nuclear materials to support facility deactivation, such as Building 9206 (Area 2), construction of new defense nuclear facilities such as the Highly Enriched Uranium Materials Facility (Area 3), and implementation of important safety programs such as criticality safety (Area 4).

Another example of the interdependence of the four strategic areas of concentration is the safety oversight of the Savannah River Site. At this site, the DNFSB must evaluate not only the safety of nuclear material processing and stabilization activities such as disposing of high level waste (Area 2), but also the safety of nuclear weapon support activities involving tritium operations (Area 1), the construction of new defense nuclear facilities such as the Pit Disassembly and Conversion Facility (Area 3), and nuclear safety programs such as high level waste tank integrity inspections (Area 4).

As discussed in Strategic Area 3 above, DOE is designing and constructing many new defense nuclear facilities that will be used to support the nuclear weapon operations and/or nuclear material processing and stabilization. To ensure that DOE protects the health and safety of the public and the workers, the DNFSB must pay close attention to the design, construction, start-up and operation of these facilities, as well as major modifications to existing facilities, including the selection of governing safety standards and requirements.

Equally important, the DNFSB evaluates the directives, standards, and programs governing DOE's safe performance of its hazardous defense nuclear activities. The DNFSB's first three strategic areas of concentration heavily rely upon the implementation of specific DOE rules and directives. The DNFSB's integrated, comprehensive oversight of the safety of DOE's defense nuclear facilities requires that the DNFSB carefully evaluate these safety programs.

The synergy gained from constant information-sharing among the DNFSB's matrixed staff which supports all four strategic areas of concentration is key to achieving the DNFSB's general goal.

The DNFSB's technical staff has been organized specifically to achieve the agency's performance goals and to execute its Strategic Plan and Annual Performance Plans. Using a matrix form of organization, the DNFSB gains management flexibility and avoids the need to establish layers of middle management that divert limited staff resources from performing health and safety reviews. Four interdependent technical groups, staffed with technical specialists having both the education and work experience commensurate with the designated oversight assignments, have been created, each with direct responsibility for achieving one of the four strategic performance goals described in this plan. Depending on the urgency of the issue, the DNFSB may reassign resources among these groups as necessary.

FINANCIAL PERFORMANCE OVERVIEW

As of September 30, 2005, the DNFSB had sufficient funds to conduct its health and safety oversight mission, and had adequate internal controls to ensure that obligations did not exceed its total budget authority. As with many small agencies with limited resources, the DNFSB has adopted the "economies of scale" philosophy for obtaining needed administrative support services. For financial support, the DNFSB has negotiated interagency agreements with the Bureau of Public Debt and the National Finance Center for personnel/payroll services, and the General Services Administration's (GSA) Heartland Finance Center for accounting services on a fee-for-service basis. The DNFSB also contracted with a public CPA firm, Cotton & Company LLP, to conduct an independent audit of the DNFSB's financial statements for FY 2005 and opine as to whether the DNFSB's financial statements are presented fairly in accordance with generally accepted accounting principles. Cotton & Company also performed the independent financial audit for FY 2004 under contract to the DNFSB.

Sources of Funds

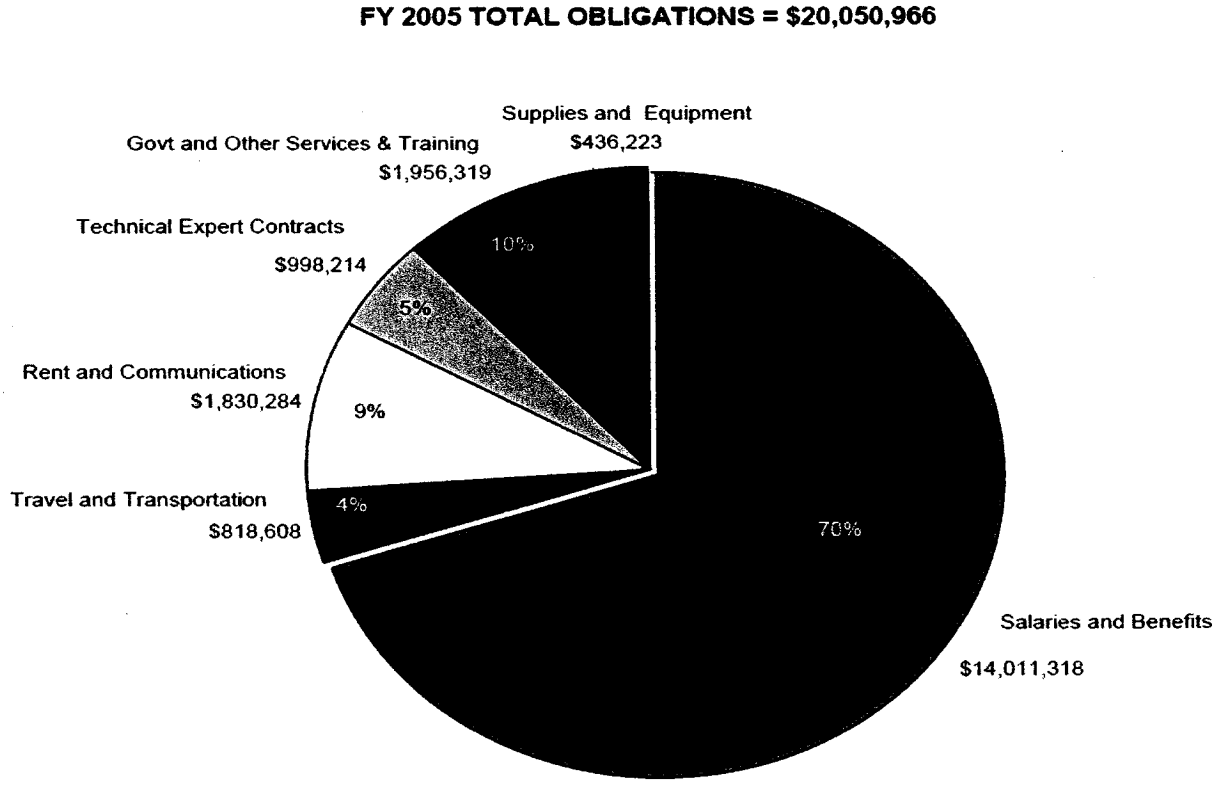
The DNFSB receives an annual appropriation, for Salaries and Expenses, with the funds made available until expended. The sources of funds available for obligation in FY 2004 and FY 2005 are listed as follows:

	FY 2004	FY 2005
New Budget Authority	$19,443,602	$20,105,856
Prior Year Unobligated Balance	2,477,974	962,560
Recovery of Prior Year Obligations & Offsetting Collections	921,071	372,271
Total Budgetary Resources	**$22,842,647**	**$21,440,687**

The DNFSB has no reimbursable work for others authority, and is not authorized to collect fees or charges for its oversight services conducted at the Department of Energy's defense nuclear facilities.

Uses of Funds by Function

The DNFSB incurred obligations of $20.1 million in FY 2005, a decrease of $1.8 million or 8 percent when compared to obligations for FY 2004. As shown on the chart below, the FY 2005 budget was used primarily to pay the salaries and benefits of our employees, with most of the remaining resources dedicated to the logistical support of the five DNFSB Members and employees as they conducted oversight operations.



FY 2005 Total Obligations by Object Class

Audit Results

FY 2004 was the first year that the DNFSB prepared audited financial statements under the requirements of the Accountability of Tax Dollars Act of 2002. Our independent auditor, Cotton & Company, issued a disclaimer of opinion on the FY 2004 financial statements.

Our FY 2005 audit, also conducted by Cotton & Company, benefitted from the "lessons learned" from the DNFSB's FY 2004 audit report. Because beginning balances for FY 2005 were not audited, the scope of the work was not sufficient to enable our auditor to express an opinion on the Statements of Net Cost, Changes in Net Position, Budgetary Resources, and Financing for the year ended September 30, 2005. However, Cotton and Company did express an opinion that the DNFSB's Balance Sheet presents fairly, in all material respects, the financial position of the DNFSB as of September 30, 2005, in conformity with accounting principles generally accepted in the United States.

Cotton and Company also made certain inquiries of DNFSB management and compared the information for consistency with the DNFSB's audited financial statements and against other knowledge we obtained during their audit. From other accompanying information, the auditor compared the information with the financial statements. Based on these limited procedures, Cotton and Company found no material inconsistencies with the financial statements.

As a result of tests of compliance with FFMIA Section 803 (a) requirements, Cotton and Company identified one instance in which the DNFSB's financial management system does not substantially comply with applicable Federal accounting standards, specifically information system controls and security.

A copy of Cotton and Company's full audit report as provided to the DNFSB, as well as a discussion of problems identified as a result of this audit and actions by DNFSB management to address the auditor's findings and recommendations, can be found in Chapter 3 of this PAR.

A full discussion of problems identified as a result of this audit and actions by DNFSB management to address these findings and recommendations can be found in Chapter 3 of this PAR.

SYSTEMS, CONTROLS, AND LEGAL COMPLIANCE

This section provides information on DNFSB's compliance with the:

- Federal Managers' Financial Integrity Act
- Prompt Payment Act
- Debt Collection Improvement Act
- Federal Travel Card Program
- Federal Purchase Card Program
- Federal Information Security Management Act (FISMA)
- Other key legal requirements

Federal Managers' Financial Integrity Act (FMFIA)

The Integrity Act requires that agencies establish controls that provide reasonable assurance that: (1) obligations and costs comply with applicable law: (2) assets are safeguarded from waste, loss, unauthorized use, or misappropriation; and (3) revenues and expenditures are properly recorded and accounted for. Based on line managers' knowledge of daily operations and other management reviews, we are confident that the

Board has a working set of internal controls, commensurate with the risks, that safeguard our assets from waste and misappropriation.

As noted in this PAR, our independent auditor reported that the DNFSB's financial management system was not in substantial compliance with Federal financial management system requirements as the result of information system control and security issues. In particular, the audit report noted three matters involving the internal control and its operation that the auditor considered to be reportable conditions, of which the first two were considered to be material weaknesses. The material weaknesses involve the financial reporting procedures and ownership of the financial statement, and the reportable condition involves internal control over information systems.

Since the beginning of operations in 1989, the DNFSB has outsourced its entire financial management operation to the GSA Heartland Finance Center. It should be clearly understood that the DNFSB is dependent on the accounting services provided by the GSA financial staff, and as a small agency, has neither the accounting resources nor expertise to support an internal accounting operation. The auditor's report reinforces the point that small agencies such as the DNFSB remain accountable for their financial processes, including the preparation of timely and accurate financial statements. Acting upon the lessons learned as a result of this audit, the DNFSB staff will work with GSA to improve internal controls of our financial operations, and request additional resources to develop an internal accounting capability to fulfil the financial reporting requirements established by OMB.

In the area of information systems, the auditor reported that the DNFSB's internal control over information systems was weak. While noting that the DNFSB had made some progress during FY 2005 in addressing known information technology weaknesses, such as implementing an overall information system security program, and an online security awareness training program, additional certifications, accreditations, and documentation needed to be prepared. The DNFSB is aware of this shortcoming in our IT operations, and is working to develop the necessary analyses and written policies while maintaining its excellent delivery of timely and reliable IT services to the Board's staff and outside customers. Operating with a limited IT budget, the DNFSB will need to request additional resources to expedite the preparation and review of he needed documentation.

Prompt Payment

Due to its limited resources, the DNFSB pays close attention to ensuring that timely payments are made to its vendors of supplies and services. During FY 2005, the DNFSB did not pay any interest penalties due to late payments. The DNFSB has internal controls procedures in place to ensure that vouchers are tracked for timely processing within the agency, and will continue to monitor GSA's accounting support for the Board to ensure vendors are paid promptly.

Debt Collection

The Debt Collection Improvement Act is intended to enhance the ability of the Federal government to service and collect debts. At the close of FY 2005, the DNFSB has outstanding debt owed to it in the amount of

$10,501. A schedule of monthly payments to retire this debt was established for two individuals, a current employee and a former employee, and all scheduled payments have been received on time. Since the DNFSB received all of its funds through direct appropriation and does not have reimbursable authority, debt collection is not an issue.

Federal Travel Card Program

The DNFSB is a full participant in the Federal Travel Card Program, and has issued travel credit cards to employees whose official duties may require them to travel. The DNFSB's funds control staff routinely monitors each employee's usage of the travel card to ensure that charge activities are restricted to official government travel-related expenses, and that the employee is paying his/her credit card bills on-time.

During FY 2005, employees were reimbursed for authorized travel-related expenses no more than five working days after their completed travel vouchers were submitted for processing. During this same period, no DNFSB employee's travel card account was more than 60 days delinquent, and no inappropriate usage of the travel card was identified during our monthly review of credit card activity.

Federal Purchase Card Program

This DNFSB has made extensive use of the U.S. Government's purchase card program to expedite the purchase of authorized supplies and services both in its headquarters and field operations. During FY 2005, transactions using individual purchase cards totaled $218,436.

The DNFSB established a system of internal controls to ensure that only authorized purchases are made by each card holder. For example, the DNFSB's purchase card procedures were distributed to all new purchase cardholders during FY 2005. These procedures stressed the requirement for completion of the electronic training program necessary to exercise the delegations of procurement authority.

The DNFSB's internal control procedures for the purchase card program feature a review much more stringent than the requirements of the program itself, without sacrificing the overall efficiency and timeliness of this purchasing method. All card purchases are reviewed and approved by the cardholder's supervisor, the purchase card coordinator, and finally, a DNFSB contracting officer gives final approval of invoices. In an effort to reduce the number of purchase cardholders in accordance with OMB recommendations, the number of purchase cards issued has been reduced throughout DNFSB operations. At the close of FY 2005, the total number of purchase cards issued was 9 at headquarters, and 8 at our field locations.

Federal Information Security Management Act (FISMA)

The Federal Information Security Management Act (FISMA) requires an annual, independent evaluation of each agency's information technology (IT) security program. Last year, the DNFSB contracted with the National Institute of Standards and Technology (NIST) to perform a review of the DNFSB's information technology security program. The results of NIST's review, along with the IT internal controls findings of the DNFSB's independent auditor, form the basis of the DNFSB's annual FISMA report to OMB, and associated Plans of Action & Milestones (POA&M). In FY 2005, the Board has continued to submit all required FISMA reports and updates to OMB.

The findings of our independent auditor highlighted the need for improvements in the policies and procedures of the DNFSB's IT security program, which led to the creation and publication of **DNFSB AP 411.2, *Information Systems Security Program*** in FY 2005. This document, which establishes agency-wide roles and responsibilities for IT security, created a framework for the establishment of additional policies and procedures that will allow the DNFSB to systematically address other areas within its IT security program that have been identified as needing improvement.

Government Accountability Office (GAO) Investigations and Reports

Audit followup is an integral part of good management. In accordance with OMB Circular A-50, each agency must establish systems to assure the prompt and proper resolution and implementation of audit recommendations. During FY 2005, the GAO did not conduct any reviews or investigations of DNFSB oversight programs, and there are no open audit recommendations from previous GAO reviews.

Improper Payments

The DNFSB is considered to be at low risk for improper payments since the functional payment areas are limited to traveler reimbursement, commercial vendors for supplies and services, and the payroll EFT payments. The DNFSB does not administer any entitlement, grant, or loan programs. During FY 2005, GSA and the Bureau of Public Debt made total payments of $19,703,598 on behalf of the DNFSB. Neither the GSA accounting staff nor the DNFSB's finance staff have identified any improper payments during this period.

Chapter 2
Program Performance

Overall Outcome: Using its expert knowledge, the DNFSB has complied with its statutory mission to ensure that public and worker health and safety are adequately protected at DOE defense nuclear facilities and met its performance goals for FY 2005. In a few cases noted in the report, additional safety improvements sought by the DNFSB have not yet been fully achieved by DOE. The DNFSB is actively pursuing these safety improvements in FY 2006.

INTRODUCTION

The DNFSB's contribution to the safety of DOE's defense nuclear activities derives from four basic types of activities. First, the DNFSB evaluates DOE's organization policies and processes to ensure that fundamental safety requirements necessary to undertake highly hazardous operations exist at DOE. These reviews evaluate topics such as technical competence of DOE and contractor personnel, adequacy of safety requirements and guidance, and the presence of a strong safety culture. The space shuttle Columbia tragedy and the subsequent report by the Columbia Accident Investigation Board clearly point out the safety significance of deficiencies in these areas and the need for safety organizations, such as the DNFSB, to emphasize reviews of this type. The DNFSB plans this type of oversight in advance and those plans are generally not affected by unanticipated changes in DOE's plans or activities.

The second major type of safety oversight activity performed by the DNFSB is the evaluation of actual hazardous activities and facilities in the field. These reviews focus on identifying the hazards attendant with DOE's mission activities and evaluating the controls put in place to mitigate those hazards. The DNFSB plans for these types of reviews based on the risk, complexity, maturity, and significance of the activities underway or planned by DOE. However, unanticipated changes in DOE's plans or new, emergent information, often change the priority of the DNFSB's oversight in this area. The DNFSB continuously seeks to be proactive and to focus DOE's attention on the most significant safety issues present in the defense nuclear complex at any given time. Therefore, because the priority of safety issues can change rapidly, the DNFSB cannot always predict in advance what activities it will review or what safety outcomes it will ultimately achieve.

Third, the DNFSB provides expert-level reviews of the safety implications of DOE's actions, decisions, and analyses. It is extremely important that the DNFSB provide DOE with independent evaluations of the technical quality and safety impacts of DOE's decisions and actions. For example, well-intended actions by DOE managers can have significant unintended negative consequences if they are based on faulty, inadequate, or misunderstood information. The DNFSB attempts to be proactive in conducting these types of reviews, but it is necessary that DOE first develop at least preliminary plans with sufficient detail to allow for a meaningful technical review. Therefore, it is not possible for the DNFSB to plan its efforts in this important area explicitly in advance. The DNFSB does allocate resources to this form of oversight, and does report the significant outcomes that result from such oversight in its performance reports.

The last major type of oversight performed by the DNFSB is the identification of new safety issues that were otherwise unknown in the DOE complex. Since, by definition, these safety issues would not have been addressed without the DNFSB's efforts, this may be the area in which the DNFSB has the largest impact on the safety of DOE's highly hazardous operations. However, by their very nature, it is impossible to plan for these emergent safety issues in advance. The effectiveness of this type of safety oversight activity relies exclusively on the expertise of the DNFSB and its staff. The DNFSB's ability to identify previously unknown safety issues is constrained by the DNFSB's limited resources.

The DNFSB uses its Strategic Plan and Annual Performance Plan to ensure that its limited resources remain focused on the most significant safety challenges and the DOE activities that warrant the most external review. All of the DNFSB's safety activities are closely tied to goals and objectives embodied in these plans. This approach gives the DNFSB confidence that its small staff (fewer than 100 FTEs, including five full-time DNFSB Members) and budget (approximately $20 million in FY 2005) are dedicated to the highest-risk activities under the DNFSB's jurisdiction. The DNFSB's strategic plan may be viewed in its entirety on the DNFSB's internet website at *www.dnfsb.gov*.

The information in this *Performance and Accountability Report* (PAR) is also provided directly to the Congress in the DNFSB's statutorily required annual report, also available on the DNFSB's website. There are slight differences between the two reports because the annual report covers calendar years rather than fiscal years. The DNFSB's *Sixteenth Annual Report to Congress* will be issued during the first quarter of CY 2006. The DNFSB's annual reports and performance reports are drafted by Federal employees of the DNFSB with only administrative assistance from contractors.

SAFETY GOALS

The DNFSB revised its strategic plan in 2003 to refocus its efforts and better align its resources to meet the challenges of ensuring safety in the defense nuclear complex as the DOE mission evolves during the latter half of this decade. Previous performance reports were established and executed to achieve the objectives of the earlier version of the DNFSB's strategic plan. The changes to the plan are evolutionary in nature and primarily result in increased DNFSB attention on ensuring safety in the area of nuclear facility design and infrastructure issues while maintaining vigilance in the areas of nuclear weapons and nuclear materials. The performance goals that result from the current strategic plan are summarized below:

SAFETY OVERSIGHT GOAL

> **The DNFSB will assist DOE in improving safety at existing and proposed defense nuclear facilities by identifying health and safety issues affecting the public and the workers, recommending actions to address these issues, and ensuring that corrective actions are completed.**

To achieve this general goal, the DNFSB has identified the following four interdependent, strategic areas of concentration and has developed performance goals and outcome objectives for each:

AREA 1. NUCLEAR WEAPON OPERATIONS:

Performance Goal: DOE operations that directly support the nuclear stockpile and defense nuclear research are conducted in a manner that ensures adequate protection of the health and safety of the workers and the public.

AREA 2. NUCLEAR MATERIAL PROCESSING AND STABILIZATION:

Performance Goal: The processing, stabilization, and disposition of DOE defense nuclear materials and facilities are performed in a manner that ensures adequate protection of the health and safety of the workers and the public.

AREA 3. NUCLEAR FACILITIES DESIGN AND INFRASTRUCTURE:

Performance Goal: New DOE defense nuclear facilities, and major modifications to existing facilities, are designed and constructed in a manner that ensures adequate protection of the health and safety of the workers and the public.

AREA 4. NUCLEAR SAFETY PROGRAMS AND ANALYSIS:

Performance Goal: DOE regulations, requirements, and guidance are developed, implemented, and maintained; and safety programs at defense nuclear facilities are established and implemented; as necessary to protect adequately the health and safety of the workers and the public.

ANNUAL PERFORMANCE OBJECTIVES

The DNFSB's *Annual Performance Plan for FY 2005* identifies annual performance objectives that consist of reviews to be conducted in support of the DNFSB's strategic plan, plus the identification of candidate areas for these reviews. An outcome measure for each objective is described as part of the discussion of each annual performance goal. Qualitative assessments of the outcome associated with each annual performance goal are provided in this chapter of the DNFSB's PAR.

The DNFSB measures progress toward achieving the positive outcomes embedded in each annual performance goal in three stages, by evaluating:

- The DOE's acknowledgment that a safety enhancement is needed after the DNFSB communicates the results of its technical reviews;
- The DOE's subsequent development of appropriate corrective actions to resolve the DNFSB-identified safety issue; and
- The DOE's implementation of the necessary corrective actions, leading to the successful resolution of the safety issue and resulting in improved protection of the public, the workers, and the environment.

The basis of measurement for the qualitative assessment includes formal, publicly-available, correspondence of DOE and its defense nuclear contractors, DNFSB correspondence, staff reports, DOE and contractor public testimony, and other sources. Past reporting (see the DNFSB's annual reports) of DNFSB-identified issues and associated DOE responses demonstrates that the DNFSB has had a clear and positive impact on the safety of DOE defense nuclear activities.

Evaluation of the *Fiscal Year 2006 Performance Plan*

No changes to the *FY 2006 Performance Plan* have been identified based on a review of actual results achieved in FY 2005.

Assessment of the Reliability and Completeness of Performance Data

The sources used by the DNFSB to measure its outcome are robust, varied, and independent. Documentation of accomplishments include the DNFSB's Annual Reports to the Congress, correspondence to and from the Department of Energy, DNFSB technical reports, and public meeting records. These documents are available for public review on the DNFSB's internet web site, *www.dnfsb.gov*. As such, the DNFSB believes that the performance data used in this report are reliable and complete.

The DNFSB did not conduct an independent program evaluation in FY 2005.

Comparison of Fiscal Year 2005 Actual Performance with Planned Performance

The following pages provide detailed information comparing the DNFSB's actual performance driving safety improvements at DOE to its plans for fiscal year 2005.

PERFORMANCE GOAL 1: NUCLEAR WEAPON OPERATIONS

DOE operations that directly support the nuclear stockpile and defense nuclear research are conducted in a manner that ensures adequate protection of health and safety of the workers and the public.

OUTCOME: DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the DNFSB. Follow-up technical evaluation of DOE's nuclear stockpile activities will verify necessary improvements in safety.

FY 2005 Performance Objectives:

The Board and its staff will verify the safety of DOE's defense nuclear facilities and activities relating to the maintenance, storage, and dismantlement of the nuclear weapon stockpile, quality assurance of the stockpile, as well as its associated research and development, and the capability to test nuclear weapons and disposition damaged or improvised nuclear devices (such as a terrorist device).

The Board and its staff will conduct assessments of DOE's efforts to develop and implement safety management systems for stockpile management activities. The Board's evaluations will be split between DOE efforts to develop safety systems (e.g., system and process designs, safety bases, control schemes, and administrative programs) and DOE efforts to implement aspects of safety management systems. These reviews will focus on activities at the Pantex Plant, Y-12 National Security Complex, SRS tritium facilities, Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), and Sandia National Laboratories (SNL), as well as the Nevada Test Site (NTS).

Representative areas for Board and staff review include:

- Development and implementation of site-wide and facility-specific safety analyses and controls for nuclear facilities and activities (e.g., safety analysis reports developed in response to 10 CFR 830).
- Annual updates of documented safety analyses developed in response to 10 CFR 830.
- Weapon-specific safety analyses and controls identification and implementation for nuclear weapon activities (the W76, B53, B61, W80 and the W84).
- Nuclear explosive operations at Pantex (e.g., the B83, special purpose facilities, and onsite transportation).
- Cross-cutting functional areas at the Pantex Plant, Y-12 National Security Complex, or SRS tritium facilities (legacy material disposition, nuclear criticality safety, fire protection, nuclear explosive safety).
- Special studies of unique or significant hazards at DOE nuclear facilities (e.g., classified projects, process technology alternatives such as the Saltless Direct Oxide Reduction [SDOR] and microwave casting).
- Ongoing start-up of enriched uranium operations, hydrogen fluoride systems, and other similar processing activities at the Y-12 National Security Complex.
- Work-planning process (e.g., activity-specific hazard analysis, controls identification, and implementation of safety controls).
- Plutonium pit manufacturing and certification at LANL.
- Preparations to dispose of damaged nuclear weapons or improvised nuclear devices at NTS.
- DOE/contractor operational readiness reviews or other readiness determinations.

- Age-related changes in nuclear weapons components for weapon systems in the enduring stockpile.
- Preparations for storage of Tritium Producing Burnable Absorber Rods at SRS.
- Compliance with the review process for facility and procedure changes that could impact nuclear safety at the Y-12 National Security Complex, the Pantex Plant, and SRS.

While performing its reviews, the staff will assess the effectiveness of ISM implementation and the safety controls identified for ongoing operations as well as any new weapon system dismantlement projects at the Pantex Plant or Y-12 National Security Complex that start in FY 2005.

FY 2005 Measured Performance:

Safety Basis at Pantex. The Implementation Plan for Board Recommendation 98-2, *Safety Management at the Pantex Plant*, includes commitments to re-engineer nuclear explosive processes and implement site-wide technical safety requirement controls for on site transportation. Satisfactory completion of these important commitments continues to be delayed. At the Board's request, senior NNSA management is now providing monthly status briefings to the Board, which has focused management attention on completing these commitments, and improving safety at the Pantex Plant.

Nuclear Material Packaging. On March 10, 2005, the Board issued Recommendation 2005-1, *Nuclear Material Packaging*, following a series of reviews regarding the safety of practices for storage of programmatic nuclear materials at DOE defense nuclear facilities. The Board's reviews had found that, although DOE had made progress in the stabilization and safe storage of its excess nuclear materials, the storage requirements for other categories of nuclear materials were not defined and controlled sufficiently to ensure worker protection. The Board recommended that DOE require technically justified criteria for safe storage and handling of nuclear materials, identify which materials should be subject to this requirement, and implement the packaging criteria in a prioritized manner based on the hazards of the different material types and the risk posed by the existing package configurations and conditions. The Secretary of Energy accepted the Recommendation on May 6, 2005, and provided an implementation plan on August 17, 2005, which was accepted by the Board. Implementation will commence in FY 2006.

Special Tooling Program at Pantex. In a letter dated December 15, 2004, the Board identified a number of deficiencies in the Special Tooling Program, which plays a vital role in the safety of nuclear explosive operations at the Pantex Plant. NNSA acknowledged that the tooling program had not demonstrated the necessary level of rigor, developed compensatory measures to address deficiencies, and tasked the site contractor to develop and implement a tooling improvement plan. The Board observed a follow-on review performed by NNSA in September 2005 which identified several issues, but found the vast majority of the improvement actions had been accomplished. The principal remaining issue is the large backlog of tooling design, fabrication, and maintenance work which accumulated while improvements in the tooling program were being pursued.

Conduct of Operations at Pantex. Based on a series of events, which indicated that deficiencies existed in the conduct of nuclear explosive operations at Pantex, the Board issued a letter on May 2, 2005, highlighting the deficiencies and querying NNSA regarding development of a plan to improve conduct of operations. In response, NNSA initiated efforts to address the cause of the deficiencies and to develop both near- and long-term plans to improve the conduct of operations, including training of technicians, improving the fidelity of training equipment, revising roles and responsibilities for supervisors, establishing performance monitoring metrics, and completing a root cause analysis.

Safe Storage of Pits. In response to the Board's Recommendation 99-1, *Safe Storage of Fissionable Material called "Pits,"* DOE continued to repackage pits into a robust container suitable for interim storage in FY 2005. NNSA has now placed a required second type of container in service. Overall, NNSA has repackaged its 12,000th pit. The Board has now closed this recommendation.

Lightning Protection at Pantex. In a letter dated November 3, 2004, the Board noted that a number of significant issues related to lightning protection at Pantex remain unresolved. Among these are an investigation into the potential for spalling of interior concrete surfaces as a result of a lightning strike and an evaluation of the impact of added inductance from facility bond wire. The Board also noted slow progress in addressing the potential for an indirect coupling mechanism from a lightning strike having an impact on nuclear explosive operations. In response, NNSA has prepared a project plan, *Investigation of Lightning Initiated Effects at Pantex*, and submitted it to the weapon laboratories for weapon response evaluation.

Laboratory Support of Pantex Nuclear Explosive Operations. The Board reviewed test programs at LLNL and LANL, which involve the response of high explosives to insults, especially with respect to electrostatic discharge and low-velocity mechanical impact. The laboratories have now agreed to a general approach to high explosive material testing, and are approaching agreement on electrostatic discharge testing of weapon components. These tests will provide vital information for the development of effective safety controls for nuclear explosive operations at Pantex.

Readiness to Dispose of a Damaged Nuclear Weapon. The Board has consistently highlighted to NNSA the need to develop the programs and infrastructure at NTS necessary to safely dispose of a damaged nuclear weapon or improvised nuclear device. On March 28, 2005, the Board sent a letter requesting that NNSA identify the desired conditions of readiness for G-Tunnel, including facility and equipment improvements, and provide its plan and schedule to establish those conditions. A follow-up review by the Board conducted in May 2005 identified further issues regarding lightning protection. NNSA is now addressing the lightning protection issues at G-Tunnel, while continuing to make substantial physical and procedural improvements and to provide training to be prepared to safely dispose of a damaged nuclear weapon or improvised nuclear device at NTS should the need arise.

Subcritical Experiments. The Board reviewed DOE's assessments and readiness for subcritical experiments, identifying inadequate nuclear safety management programs; inadequate mechanisms for verification of readiness of subcritical experiments and test readiness (should nuclear weapons testing be resumed); and inadequate safety bases for subcritical experiments and nuclear weapons testing. In FY 2005, NNSA's Nevada Site Office improved safety basis reviews, improved the readiness review process, and committed to improve the implementation of controls and the conduct of readiness reviews. As a result, subcritical experiments have a more complete documented safety analysis and thorough verification of readiness.

Electrical Systems and Lightning Protection at NTS. In a letter dated July 1, 2003, the Board noted several safety issues related to electrical and lightning protection systems at NTS. NNSA responded on May 14, 2004, and presented a reasonable approach to address many of the issues raised by the Board. In FY 2005, NNSA developed a site-wide directive for the lightning protection program and lightning protection studies were completed, but a follow-up review performed by the Board in January 2005 found that a significant number of the actions to which NNSA had committed remained unfinished. By March 2005, NNSA had addressed the electrical and lightning protection issues, significantly improving the safety posture across the site.

Device Assembly Facility at NTS. The Board identified deficiencies in safety management programs, implementation of controls, readiness reviews, seismic analysis, and several potential structural issues at the Device Assembly Facility at NTS. In response, NNSA narrowed the scope of near-term operations, increased the resources to support the implementation of controls, committed to a readiness review process, and initiated a seismic analysis and structural assessment.

LANL Resumption Activities. Following the suspension of nuclear operations at LANL on July 16, 2004, the Board assessed conditions at the laboratory and reviewed its restart approach. The Board emphasized the need to closely monitor and appropriately adjust plant conditions to maintain a safe and stable configuration during the stand-down. The Board supplemented its full-time site-representatives with additional staff to provide real-time feedback to NNSA and LANL personnel responsible for resumption activities. The Board has been encouraging NNSA to make certain that adequate resources are provided for full implementation of the corrective action plans emerging from the resumption process.

Confinement Ventilation at the LANL Plutonium Facility. The current safety basis for the LANL Plutonium Facility credits a passive confinement strategy (i.e., no active confinement ventilation) as a safety-class control to protect the public from postulated accidents. In response to issues raised by the Board, LANL analysts performed a comprehensive set of air-flow calculations to estimate potential releases under accident conditions and concluded that a passive confinement strategy was inadequate as a safety-class control. NNSA is currently preparing a plan and schedule for implementation of an effective safety-class control to protect the public from the consequences of a potential event at the Plutonium Facility.

Full-Scale Aqueous Processing of Plutonium-238 at LANL. In preparation for near-term startup, the Board continued to evaluate the safety of the LANL full-scale aqueous processing line for plutonium-238. The Board observed that LANL had not adequately resolved previously identified issues, such as the flammability hazards posed by the generation of hydrogen gas in process equipment. LANL subsequently committed to strengthen the technical bases and add necessary safety controls.

Conduct of Engineering at LANL. The Board previously noted continued delays in the full implementation of DOE Order 420.1A, *Facility Safety*, which provides design requirements for nuclear facilities, at LANL. The Board also observed that some of the more complex and higher-hazard research, development, demonstration, testing and production work would benefit from a structured application of engineering standards and practices, a formal conceptual design phase similar to that for large facility projects, and design reviews following conceptual and final design. LANL has now incorporated corrective actions to address these issues as part of the Operational Efficiency project that emerged from the suspension of operations at LANL.

Fire Protection at LANL. The Board reviewed the fire protection program at LANL and concluded that while LANL and NNSA had increased their attention to fire protection and taken some appropriate actions, resolution of issues had been piecemeal. Issues that needed to be addressed included: incomplete documentation and delays in the completion of inspections, tests, and maintenance; fire hazard analyses recommendations not implemented on a timely basis; no formal plan to address the Baseline Needs Assessment for fire and emergency services; no long-term contract for fire and emergency services with Los Alamos County; and fire alarm systems in several defense nuclear facilities still requiring upgrades. The Board has requested that NNSA define a multi-year strategy for timely resolution of all fire protection deficiencies and achievement of site-wide improvements.

Request for Proposal for the LANL Management and Operating Contract. On December 1, 2004, NNSA issued a draft Request for Proposal (RFP) for the LANL management and operating contract. The Board's review of the draft RFP found that it placed unnecessary and ill-advised limitations on the DOE's right to inspect and oversee the activities of the contractor, undermined NNSA's system for identifying and implementing safety requirements, and omitted relevant safety requirements. The Board issued a letter to NNSA on December 16, 2004, identifying these problems. The RFP was subsequently amended to address the issues raised by the Board, significantly strengthening NNSA's safety posture at the laboratory.

Safety Basis at Sandia National Laboratories, New Mexico. In late FY 2005, the Board identified fundamental weaknesses in the implementation of nuclear safety requirements and controls at a defense nuclear facility located at Sandia National Laboratories. In response, the Sandia Site Office has reassessed the adequacy of the safety bases for other defense nuclear facilities at Sandia and has rescinded start-up approval for the initial facility in question, where safety basis deficiencies remain, until the documented safety analysis can be revised.

Hazard Analysis Deficiencies at Sandia National Laboratories, New Mexico. In an October 8, 2004 letter, the Board identified multiple failures of the hazard analysis and work control process at Sandia National Laboratories. In response, DOE developed a corrective action plan to ensure the associated weaknesses are corrected and that integrated safety management is fully implemented.

Y-12 Seismic Deficiencies. An evaluation by the Board of the Enriched Uranium Operations building at Y-12 indicated extensive seismic deficiencies. In light of NNSA's plan to build a replacement facility by 2013, the Board encouraged NNSA to take steps to implement practical facility modifications in the near term and reduce the quantity of at-risk nuclear material. NNSA is developing a plan to address this issue.

Y-12 Glovebox Installation. The Board reviewed the new glovebox installation and hazard analysis for the Assembly/Disassembly Building at Y-12. Discussion of the results of the Board's review with NNSA and the Y-12 contractor resulted in certain improvements in the equipment design and the procedures.

Y-12 Electrical Safety. As a result of a small electrical fire in the Enriched Uranium Operations Building in 2003, NNSA initiated a corrective action plan that included thermal imaging and evaluation of all Y-12 electrical panels. Initial inspections determined that more intrusive inspections were required for some of the panels. The Board noted that these prudent actions were apparently being delayed by other priorities and encouraged NNSA to complete them in a timely manner. As a result, NNSA applied additional resources and expects to finish by the end of 2005.

Y-12 Authorization Basis Implementation Validation. The Board reviewed Y-12 processes for conducting independent implementation validation reviews for documented safety analysis (DSA) controls developed under 10 CFR 830. The Board noted that Y-12 did not intend to make periodic use of such reviews to ensure controls continued to be properly implemented. In response, Y-12 now intends to require comprehensive independent validation of implementation of DSA controls in each nuclear facility at least every three years.

LLNL Plutonium Facility Safety Basis. In an April 2004 letter, the Board outlined fundamental flaws in NNSA's approach to safety basis development at this facility, particularly the downgrading of the safety-class ventilation system based on questionable calculations. Following an independent analysis of these calculations, NNSA reported to the Board in FY 2005 that it had directed the laboratory to maintain the Plutonium Facility's ventilation system as a safety-class system.

Configuration Management at LLNL. In a November 2004 letter, the Board identified the apparent lack of configuration management of vital safety systems at LLNL facilities. NNSA responded on January 4, 2005, agreeing that prompt action needed to be taken to review the configuration and condition of all vital safety systems in LLNL defense nuclear facilities. During FY 2005, DOE completed evaluations of the application of configuration management for the vital safety systems at LLNL defense nuclear facilities, and developed plans to establish the needed configuration management program.

Resumption of Programmatic Operations at LLNL. In January 2005, DOE's Office of Independent Oversight and Performance Assurance (OA) issued a report identifying serious deficiencies in the administrative control programs mandated by the Technical Safety Requirements for the Plutonium Facility (including the configuration management program), as well as deficiencies in the supporting analyses for safety systems. Because of these findings, LLNL

suspended programmatic operations in the Plutonium Facility. The Board issued a letter to NNSA on March 8, 2005, cautioning NNSA against resuming substantial programmatic activity in the Plutonium Facility prior to adequately addressing the findings of the OA report, and requesting a report detailing DOE's path forward for resuming programmatic operations. In July 2005, NNSA and LLNL briefed the Board on a generally acceptable path forward toward achieving and verifying readiness to resume a limited scope of programmatic operations. NNSA provided the details of this plan to the Board in a September 2005 letter. Execution of this plan will continue into FY 2006.

Nuclear Material Packaging and Storage at LLNL. During a November 2004 review at LLNL, the Board identified weaknesses in the packaging and storage of nuclear materials not covered by either Recommendation 94-1, *Improved Schedule for Remediation in the Defense Nuclear Facilities Complex*, or the inactive materials program. Deficiencies in storage criteria and packaging systems indicated that LLNL was not pursuing a systematic, technically justified approach to packaging. In response, NNSA directed the laboratory to evaluate this problem and make improvements to ensure the safe storage of these materials.

PERFORMANCE GOAL 2: NUCLEAR MATERIAL PROCESSING AND STABILIZATION

The processing, stabilization, and disposition of DOE defense nuclear materials are performed in a manner that ensures adequate protection of health and safety of the workers and the public.

OUTCOME: DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the DNFSB. Follow-up technical evaluation of DOE's nuclear materials management and facility disposition activities will verify necessary improvements in safety, as DOE meets its commitments to the DNFSB to stabilize and dispose of hazardous nuclear materials.

FY 2005 Performance Objectives:

The Board and its staff will conduct assessments of DOE's efforts to characterize, stabilize, process, and safely store plutonium, uranium, and other actinides, residues, spent fuel, and wastes from the nuclear weapons program, to ensure that these efforts are performed safely and that the risks posed by these materials are addressed in a timely manner. These reviews will be conducted using the principles of Integrated Safety Management and will include assessments of the adequacy of current storage conditions, evaluations of proposed treatment and disposal technologies, evaluations of the design of new facilities and process lines, assessments of facility readiness to safely begin new operations (including implementation of 10 CFR 830, *Nuclear Safety Management*), the safety of ongoing operations, and the suitability of long-term storage and disposal facilities. Representative areas for review include:

- Stabilization, packaging, and storage of plutonium metal and oxide at the Savannah River Site (SRS) and Los Alamos National Laboratory (LANL) (Recommendation 94-1/2000-1), including followup on findings and recommendations from the study of the adequacy of plutonium storage at SRS as required by Public Law 107-314, Section 3183, *Study of Facilities for Storage of Plutonium Materials at Savannah River Site.*
- Stabilization and disposal of plutonium-bearing residues at LANL (Recommendation 94-1/2000-1).
- Design of modifications to existing SRS facilities to increase long-term plutonium storage capacity and provide long-term restabilization/repackaging capability.
- Design of modifications to existing SRS facilities to support potential plutonium disposition activities.
- Monitoring and surveillance activities in support of long-term storage of plutonium.
- Neptunium solution stabilization operations at the SRS (Recommendation 94-1/2000-1).
- Characterization, stabilization, and packaging of uranium-233 (^{233}U) at Y-12 (Recommendation 97-1).
- Design of treatment facilities for high-level waste liquids and salts at the SRS, and system improvements to ensure safe management of the SRS high-level waste (Recommendation 2001-1).
- Testing and operation of high-level waste retrieval and transfer systems at the Hanford Site.
- Operation of the Melton Valley transuranic/alpha waste treatment facility at Oak Ridge National Laboratory (ORNL).
- Safety of spent nuclear fuel basin sludge retrieval, treatment, and storage at the Hanford Site (Recommendation 94-1/2000-1).
- Safety of initial contact-handled and remote-handled transuranic waste operations at the Waste Isolation Pilot Plan (WIPP).
- Safety of processing and packaging of cesium and strontium capsules for dry storage at the Hanford Site.
- Complex-wide legacy nuclear material issues, including evaluation of materials not addressed by Recommendations 94-1 and 2000-1 and utilization of stabilization capabilities.

- Design of ORNL's system for processing ^{233}U (i.e., ^{229}Th extraction) for potential medical applications.
- Decommissioning activities in Building 371 at Rocky Flats Environmental Technology Site (RFETS).
- SRS deactivation activities, including F-Canyon and M-Area facilities.
- Hanford Site decommissioning activities (e.g., planning for decommissioning the Plutonium Finishing Plant, U-Plant, and K-Basins).
- Decommissioning at the Miamisburg Closure Project.
- Decommissioning at the Fernald Closure Project, including operation of the Silos Project facilities.
- Deactivation and decommissioning of the Heavy Element Facility (Building 251) at Lawrence Livermore National Laboratory.

FY 2005 Measured Performance:

Nuclear Material Stabilization and Storage at LANL. The Board increased its oversight of the efforts of DOE and the contractor at LANL to establish adequate systems, safety bases, and procedures for the stabilization of plutonium scrap materials. The efforts at LANL continue to lag far behind the commitments made by the Secretary of Energy. The Board continued to ensure that DOE addressed safety issues communicated to DOE in previous years.

Surveillance and Monitoring Program for Plutonium Storage. The Board continued to monitor activities within DOE to comply with DOE-STD-3013, *Stabilization, Packaging, and Storage of Plutonium-Bearing Materials*, which establishes requirements for the long-term storage of plutonium metal and oxides and requires a surveillance and monitoring program to verify safe storage parameters. Through the Materials Identification and Surveillance Program, the Board provided feedback on the scientific and statistical methodology being employed for surveillance of plutonium in storage.

High-Level Waste Tank Integrity. The Board closely followed the HLW tank integrity program for double-shell tanks at Hanford. The Board issued a letter to DOE questioning DOE's approval of a plan to exempt a tank from waste chemistry limits established in the technical safety requirements, and requested a report on the long term management of tank space while maintaining waste chemistry within TSR limits. DOE responded to the Board's request, and sponsored laboratory corrosion studies to establish optimum waste chemistry limits for maintaining tank integrity. In a letter to DOE, the Board noted that laboratory studies for vapor space corrosion within the tanks was not included. DOE is assessing the feasibility of including vapor space corrosion studies in the program.

Hanford Tank Farms Integrated Safety Management. The Board reviewed a series of occurrences, incidents, near misses, and other operational events indicating serious weaknesses in work planning, conduct of operations, and responses to unexpected conditions. The Board issued a letter requesting that DOE provide a report on the weaknesses in integrated safety management at the tank farms and on corrective actions to improve worker safety. Hanford's tank farms contractor identified and implemented corrective actions, and DOE conducted a two-part improvement validation review at the tank farms in November 2004 and March 2005.

Tank 48 Disposition. The Board reviewed the safety of DOE's proposed disposition of HLW from Tank 48 at SRS, which poses a potential explosion hazard due to the generation of flammable vapors. The Board found that DOE did not have enough validated experimental data to show that an explosion would not occur during processing or disposal. DOE committed to perform additional analyses and experiments with better analytical techniques and equipment to ensure the safety of this operation.

Hydrogen Release from HLW. The contractor at SRS developed a hydrogen retention model for HLW tanks that led to a program for periodic agitation of the waste in certain HLW tanks to prevent a large hydrogen release. The Board questioned the conservatism of the model; subsequently, an actual hydrogen release event showed that the model was non-conservative. As a result, the contractor developed and implemented a conservative hydrogen retention model and agitation program that reduces the possibility of a fire or explosion due to the release of hydrogen.

Safety System Upgrades at SRS. As a result of safety issues raised by the Board, the contractor at SRS made safety equipment upgrades on HLW Tanks 3, 11, and 41 at the SRS. The upgrades included the installation of ventilation interlocks, lower flammability limit interlocks, and devices to prevent inadvertent addition of liquid to the tanks.

Transfer Control Program at SRS. In the last year, several inadvertent transfers of HLW occurred at the tank farms at SRS. The Board reviewed the transfer control program and suggested improvements to reduce the possibility of transfer errors. The contractor revised the transfer control program and incorporated the Board's suggested improvements.

Hanford Spent Nuclear Fuel Project. The Board's review of ongoing spent nuclear fuel project operations at Hanford identified that changing conditions were not being appropriately reviewed by the contractor for safety implications. Reevaluation of these activities led the implementation of new controls to provide adequate safety for fuel removal operations. The contractor completed spent nuclear fuel removal with the exception of a limited number of fuel pieces that will be removed during sludge retrieval efforts. The removal of spent nuclear fuel from the K Basins represents a significant reduction in risk at the Hanford Site.

Hanford Sludge Retrieval and Disposition Project. The Board continued to provide oversight of the contractor's efforts to retrieve of sludge from the K-East Basin at Hanford and to design the sludge transfer system. Safety issues identified by the Board led the contractor to make design changes and DOE to commission a Sludge Review Board to provide additional oversight. The Board urged DOE and the contractor to reevaluate the effectiveness of corrective actions identified in response to past deficiencies. After delays and difficulties with sludge retrieval operations, the project began to make some progress toward the goals of completing sludge retrieval and preparing for sludge treatment.

Decommissioning of Building 371 at the Rocky Flats Environmental and Technology Site (RFETS). The Board completed its safety oversight responsibilities with the dismantlement of Building 371, which was the last plutonium building at RFETS. The Board conducted several meetings with both DOE and the contractor and visited the site, reinforcing the importance of worker safety. The Colorado Department of Public Health and Environment now has responsibility for oversight of DOE's program for monitoring and surveillance of legacy materials.

Hanford Site Decommissioning Activities. The Board reviewed decommissioning activities at the Plutonium Finishing Plant (PFP) and identified safety issues regarding the criticality safety and fire protection programs. The Board sent letters to DOE on these subjects, and the contractor developed corrective actions to resolve the issues. Although the contractor made some improvements, PFP managers noted additional difficulties. Subsequently, the Board met with representatives of DOE and contractor to discuss ongoing corrective actions to improve worker safety.

Deactivation Activities at the Savannah River Site (SRS). The Board reviewed deactivation and decommissioning activities at SRS and concluded that the program is reasonably well run. The program is ahead of the target schedule to demolish 239 buildings before the end of the current contract, September 30, 2006. The Board has emphasized criticality safety and fire protection, and has sent a letter to DOE requesting increased effort on hazard analysis and worker protection.

Decommissioning at the Miamisburg Closure Project. The Board closely followed the decommissioning work at Miamisburg, stressing worker safety, which has been good at the site. Site closure work was completed in December 2005—this includes demolition of 66 buildings and transfer of 9 buildings to the Miamisburg Mound Community Improvement Corporation for commercial use.

Decommissioning at the Fernald Closure Project. The Board reviewed safety documentation and readiness preparations for the Silo 1, 2, and 3 projects at Fernald, which are designed to retrieve and package uranium-bearing wastes for shipment and disposal offsite. The Board and the site readiness review teams found several deficiencies in

the Silos 1 and 2 project and determined that corrective actions were needed before radioactive operations could begin. The Board sent a letter to DOE stating that improvements were needed in the management self-assessment process used by the contractor to verify that the project was ready to begin operations. As a result, project managers corrected the self-assessment process, successfully completed a startup readiness review, and safely began waste processing operations.

Deactivation of the Heavy Element Facility at the Lawrence Livermore National Laboratory. Laboratory operators removed sufficient inventory of radioactive material from the Heavy Element Facility to allow it to be downgraded to a Radiological Facility. Facility operators then began decontamination and disposal of gloveboxes. The Board provided oversight of these activities and ensured that lessons learned from decommissioning activities at other DOE sites were incorporated into the deactivation and decommissioning work.

Melton Valley TRU/Alpha Low-Level Waste Treatment Facility. Prior to startup of this new facility, the Board pointed out deficiencies in the conduct of operations for radiological work. In response, the contractor upgraded the safety of non-routine radiological work by requiring verbatim compliance with procedures.

Retrieval of TRU Waste Drums at Hanford. The Board reviewed DOE plans to retrieve TRU waste drums from soil-covered trenches and noted a lack of adequate controls to protect the workers. In response to a letter from the Board, DOE and its contractor implemented more robust controls for handling unvented drums and began planning for the safe retrieval and handling of high-source term drums containing plutonium-238.

PERFORMANCE GOAL 3: NUCLEAR FACILITIES DESIGN AND INFRASTRUCTURE

New DOE defense nuclear facilities, and modifications to existing facilities, are designed and constructed in a manner that ensures adequate protection of health and safety of the workers and the public.

OUTCOME: DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the DNFSB. Follow-up technical evaluation will verify necessary improvements in the design and construction of DOE's new nuclear facilities and major modifications to existing facilities. New nuclear facility designs will meet acceptable safety standards.

FY 2005 Performance Objectives:

The Board and its staff will continue its reviews of DOE's implementation of integrated safety management (ISM) in design and construction activities. At least five reviews will be completed. Candidates for review include:

- Review the design of potential modifications to existing Savannah River Site (SRS) processing facilities to support plutonium disposition activities.
- Evaluate the design of modifications to existing SRS facilities to support potential plutonium disposition activities.
- Review the design of modifications to existing SRS facilities to increase long-term plutonium storage capacity and provide long-term restabilization/repackaging capability.
- Review the design of the treatment facility for high-level waste liquids and salts at SRS, and system improvements to ensure safe management of SRS high-level waste (Recommendation 2001-1).
- Review the design of Oak Ridge National Laboratory's system for processing ^{233}U (i.e., ^{229}Th extraction) for potential medical applications.
- Continue design and construction reviews of the Waste Treatment Plant at the Hanford Site and the Highly Enriched Uranium Materials Facility at the Y-12 National Security Complex. Topics to review may include: pretreatment feed evaporation, ultra-filtration, and ion exchange systems, vitrification facilities off-gas and off-gas control systems, hydrogen mitigation and pulse jet mixing design bases, and construction quality.

As a result of these reviews, DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the Board. Follow-up technical evaluation will verify necessary safety improvement in the design and construction of DOE's new nuclear facilities and major modification to existing facilities. New nuclear facility designs will meet acceptable safety standards.

FY 2005 Measured Performance:

The Board and its staff continued providing technical evaluations of numerous design and construction projects throughout the DOE complex. These evaluations have led to DOE improving the design, correcting construction deficiencies noted, as well as starting actions to correct identified issues. Some of these actions are:

Hanford Waste Treatment Plant. The Board has continued its extensive review of the design and construction of important-to-safety structures, systems and components in the Waste Treatment Plant facilities. Numerous deficiencies and concerns have been identified during these reviews, for example:

- The Board had earlier identified that the DOE-specified seismic requirements may not have been sufficiently conservative. DOE evaluation of this concern identified that the seismic requirements were underestimated by about 40 percent. DOE and its contractor are now evaluating the impact this increase will have on the design of the structure and equipment.
- DOE significantly underestimated the impact of hydrogen hazards on pipes and small process vessels and components. At the urging of the Board, DOE is now evaluating design solutions to address the issue.
- At the Board's suggestion, DOE completed a detailed review of the blackcell concept. Components in the blackcells will not be readily accessible for the life of the plant. This review revealed problems associated with erosion of components. DOE has now enhanced their understanding of erosion and is developing a surveillance and testing program to better ensure components in the blackcells will last for the life of the plant.
- The Board has identified deficiencies in the structural evaluation methodology. An independent Peer Review Team brought on at the Board's suggestion by DOE to help them with the structural evaluation agreed with the Board. DOE has now required the contractor to change its analysis methodology to correct the deficiencies.
- The Board continues to follow the status of the design and installation of fire protective coating to structural steel subsequent to DOE directing the contractor to comply with code requirements. Questions on the basis for deleting coatings on some steel have resulted in the contractor committing to develop criteria and a methodology to justify the decisions. DOE now monitors the work and recently questioned the contractor's basis for reducing the approved thickness of the applied coatings, which is still under review.
- The Board identified deficiencies with plans for protection of operators who must remain in the control room during accidents to safely shutdown the plant. WTP has now redesigned the habitability system for the emergency shutdown facility. The new design provides for a dramatic improvement in protection of the operators.

Salt Waste Processing Facility at SRS. The Board's review of the conceptual design of the Salt Waste Processing Facility identified weaknesses in the facility's design criteria for natural phenomena hazards and with DOE directives, as well. DOE commissioned an independent review team of subject matter experts to review the Board's issue. This independent review team agreed with the Board's issue and made recommendations to improve the design criteria for the facility. As a result, DOE is developing new criteria to ensure that the design of the facility will adequately confine hazardous materials. The Board has also informed DOE of the concerns with the DOE directives associated with developing facility design criteria.

Pit Disassembly and Conversion Facility. The Board continued to review the safety of the design of the Pit Disassembly and Conversion Facility (PDCF). The Board found the Preliminary Documented Safety Analysis comprehensive and acceptable. However, the Board questioned the impact of geologic soft zones at the site and their possible impact on the PDCF plutonium processing building during a Design Basis Earthquake. Because the PDCF plutonium processing building is a bermed structure, it has much larger vertical soil stresses than other SRS buildings. Hence, surface settlement profiles at the building foundation become a critical design parameter and the details of the soft zone characteristics take on an added significance. DOE has initiated a review of this issue.

Tritium Extraction Facility. The Board continues to provide oversight of the Tritium Extraction Facility, which has completed construction and is now in the testing and startup phase. The facility has an advanced computerized process control and worker protection system. At the Board's urging, a special one week software review was conducted by experts from the NNSA Service Center, and reviews of the computerized systems have been added to the DOE Operational Readiness Review (ORR). Also, there are certain maintenance and operations evolutions that cannot be demonstrated during the ORR. At the Board's urging, DOE ORR team members are observing selected items of maintenance and operations being conducted prior to the ORR.

Los Alamos National Laboratory Chemistry and Metallurgy Research Replacement Project. The Board reviewed the major safety aspects of the Critical Decision 1 package submittal. In a letter dated February 24, 2005, the Board raised concerns with the project's acquisition strategy and compressed federal oversight schedule. In response to the letter, NNSA developed a detailed review plan that outlines direct federal involvement to monitor the integration of safety throughout the design process. The Board also identified weaknesses with the project's confinement strategy, which will be addressed during the preliminary design.

Pantex Building 12-64 Upgrade Project. The project team established an administrative limit on the quantity of high explosives to preclude failure of the roof slabs. However, the Board questioned whether the initial analysis work justified the new explosive limits. DOE thereafter modified the methodology to include a quantification of the hazard so that a rational and justifiable limit could be selected. The final explosive limits were reviewed by the Board and found to provide an adequate level of safety.

Hanford Demonstration Bulk Vitrification Facility. During review of the preliminary design of the Demonstration Bulk Vitrification Facility, the Board identified deficiencies with the safety controls specified for protection of the workers. In particular, confinement of the hazardous material involved was not sufficient. DOE commissioned an independent review of the project safety basis and confinement strategy. This independent review agreed with the Board. DOE is now taking action to revise the design to provide better safety controls and confinement strategy.

Plutonium Storage at SRS. In Public Law 107-314, Section 3183, *Study of Facilities for Storage of Plutonium and Plutonium Materials at Savannah River Site*, Congress tasked the Board to conduct a study of the adequacy of K-Area Materials Storage facility (KAMS) and related support facilities such as Building 235-F (235-F), at SRS. In 2005, the Board issued its annual update to Congress. The Board proposed nine actions it considered necessary to enhance safety, reliability, and functionality of the plutonium storage facilities at SRS. Based in part on these extensive proposals, DOE has now decided against using 235-F and is now consolidating its plutonium in KAMS. DOE has agreed with the proposals to upgrade KAMS and is evaluating implementation of the needed actions.

Highly Enriched Uranium Manufacturing Facility at Y-12 National Security Complex. The Board has completed its design reviews of the High Enriched Uranium Materials Facility (HEUMF) and believes the design will adequately protect the public and workers. Some design enhancements remain to be implemented. For example, the contractor has agreed to correct emergency lighting deficiencies—system components are not seismically qualified, subjecting the building to a total blackout during an earthquake. The contractor will analyze the ability of the safety controls to protect against large fires involving canned subassemblies. The project configuration management system is being upgraded.

PERFORMANCE GOAL 4: NUCLEAR PROGRAMS AND ANALYSIS

DOE develops, maintains, and implements regulations, requirements, and guidance; and establishes and implements safety programs at defense nuclear facilities as necessary to ensure adequate protection of health and safety of the workers and the public.

OUTCOME: DOE will have acknowledged, acted upon, and/or resolved the health and safety issues raised by the DNFSB. In addition, follow-up technical evaluation of DOE's safety programs at defense nuclear facilities will verify necessary improvements in safety, and effective implementation of Integrated Safety Management principles.

FY 2005 Performance Objectives:

The Board will continue to assess the adequacy of proposed changes to DOE directives to ensure that any revisions are appropriate and adequate. The results of reviews completed by the Board will be provided to DOE for action. The Board anticipates that approximately 20 DOE directives that may impact public and worker health and safety require review, of which two or three are likely to require significant Board and staff interaction to ensure satisfactory resolution of potential issues. The Board also expects to continue its involvement in the efforts of the National Nuclear Security Administration (NNSA) to establish its own directive system. It is estimated that 25 NNSA directives will also require review. As a result of these reviews, new or modified health and safety directives will be issued in an enhanced form, resulting in improved safety through standardized requirements and guidance that provide for adequate protection of the workers and the public.

The Board will continue its reviews of DOE's implementation of Integrated Safety Management (ISM), as well as ongoing efforts to make ISM more effective. At least five reviews will be completed. Candidates for review include:

- Activity-level ISM implementation at sites with performance indicators judged to have higher than expected rates of abnormal occurrences related to worker protection.
- Activity-level ISM at several NNSA sites.
- Activity-level ISM for non-10 CFR 830 activities.
- Validation of at least one ISM review by the DOE Office of Oversight.
- Implementation of line oversight of ISM per DOE P 450.5 at one EM site and one NNSA site.
- Implementation or Recommendation 2000-2, *Configuration Management, Vital Safety Systems.*
- Implementation and effectiveness of ISM at defense nuclear facilities.

The Board has noted that considerable progress has been made in the implementation of ISM, but that continued DOE efforts are necessary to maintain ISM systems and ensure continuous improvement across the complex. Specific functional areas will be sampled to a greater depth, such as training and qualification, quality assurance, nuclear criticality safety, software quality assurance, conduct of operations, readiness preparations, hoisting and rigging. As a result of these reviews, DOE will provide an adequate approach and schedule for resolution of identified issues that supports safe operation of defense nuclear facilities.

The Board will complete its initiative to identify the potential issues associated with DOE's and NNSA's new policies on line oversight and contractor assurance and ensure DOE and NNSA senior management address these issues before implementing the new policies. The Board anticipates that this effort will have required a series of public meetings and significant Board and staff interaction with multiple federal and contractor agencies.

The Board will verify that roles, responsibilities, experience, and competencies required to protect the workers and the public are explicitly defined and implemented for both DOE and its contractor personnel.

FY 2005 Measured Performance:

DOE Directives. As part of its ongoing review of new and revised DOE directives, the Board and its staff evaluated and provided constructive critiques of 32 directives associated with, but not limited to, worker protection management, electrical safety, quality assurance, internal and external dosimetry, and natural phenomena hazard mitigation. At year's end, both staffs were in the process of resolving issues on 19 pending directives to improve the content, clarity, and consistency in safety requirements and guidance. Examples include:

- DOE Order 251.1X, *Directives Program*
- DOE Standard 1104, *Review and Approval of Nuclear Facility Safety Basis Documents*
- DOE Order 420.1B, *Facility Safety*

Electrical Safety Handbook. The Board identified weaknesses with the proposed revision to the *Electrical Safety Handbook*, DOE-HDBK-1092-98, and requested that DOE provide effective, detailed guidance to contractors on electrical safety programs. In December 2004, DOE issued the revised handbook. The Department has also initiated a major effort to improve electrical safety across the complex.

Administrative Controls. In Recommendation 2002-3, *Requirements for the Design, Implementation, and Maintenance of Administrative Controls*, the Board identified the need for DOE to improve its guidance and expectations with respect to important administrative controls at Defense Nuclear Facilities. As a result of the Board's Recommendation, the Department developed and implemented a plan to improve the reliability and effectiveness of administrative controls that serve in safety functions. DOE developed a new Standard governing the development and implementation of specific administrative controls in the defense nuclear complex. Additionally, DOE has developed a set of training materials that were used to introduce the new and revised requirements to its field elements. Further, as a result of the Recommendation, DOE is actively verifying the adequacy and implementation of the revised guidance and expectations throughout the complex. The Board continues to work closely with DOE to finalize the guidance to ensure that proper safety focus is afforded to administrative controls that provide important safety-related functions at DOE facilities.

Review of Documented Safety Analyses, Safety Basis Assumptions, and Safety Programs. The development of a comprehensive safety basis and the identification and selection of an appropriate control set are essential cornerstones of safe operation at defense nuclear facilities. The Board conducted numerous reviews of the safety bases throughout the DOE complex. The Board reviewed the critical assumptions used in the development of the safety bases as well as the control strategies used to prevent and mitigate accident scenarios of concern. The Board identified a number of specific weaknesses in the development and implementation of the safety bases at defense nuclear facilities. In particular, the Board highlighted concerns with the safety bases at the Nevada Test Site's Device Assembly Facility (DAF), as well as the training program at the DAF. Further, the Board continues to closely follow site specific concerns at the Pantex plant involving a number of weaknesses in the tooling program. As a result of these concerns, DOE and its contractors are implementing corrective actions to address these issues.

Use of Quantitative Risk Assessment Methodologies. The Board continues to follow DOE's activities associated with the use of quantitative risk assessment at Defense Nuclear Facilities. Previously, the Board conducted a comprehensive assessment of DOE's policies, programs, processes, and procedures with respect to the use of quantitative risk assessment and related methodologies. The Board's review suggested that DOE and its contractors have employed quantitative risk assessment in a number activities including the development of documented safety analyses and other facility-level decision making activities. The precise use, as well as the level of formality of these assessments, varied over a wide range. As a result of the Board's observations, DOE has developed a draft Policy governing the use of risk assessment methodologies at Defense Nuclear Facilities.

Oversight of Complex, High-Hazard Nuclear Operations. From 2003-2004, the Board conducted eight public hearings to examine DOE's and NNSA's current and proposed methods of ensuring safety at its defense nuclear facilities. The Board cautioned DOE and NNSA that if any such changes are made, they must be done formally and deliberatively, with due attention given to unintended safety consequences that could reduce the present high level of nuclear safety. The Board also sought to benefit from the lessons learned as a result of investigations conducted following the Columbia Space Shuttle disaster and the discovery of the deep corrosion in the reactor vessel head at the Davis-Besse Nuclear Power Plant. From these hearings, the Board concluded that there was cause for concern with regard to the potential increase in the possibility of nuclear accidents as evident in: (1) the increased emphasis on productivity at the possible expense of safety, (2) the loss of technical competency and understanding at senior management levels within DOE's and NNSA's organizational structure, (3) the apparent absence of a strong safety research focus, and (4) the reduced central oversight of safety.

On May 21, 2004, the Board issued Recommendation 2004-1, *Oversight of Complex, High-Hazard Nuclear Operations*, to ensure that any fundamental reorganization at DOE and NNSA does not degrade nuclear safety, and that the likelihood of a serious accident, facility failure, construction problem, or nuclear incident will not be increased as a result of well-intentioned changes. On July 21, 2004, the Secretary of Energy accepted the Board's Recommendation, however, the DOE implementation plan submitted to the Board on December 23, 2004 did not provide sufficient emphasis and detail that would strengthen DOE's federal safety assurance, ability to learn from internal and external operating experience, or revitalize Integrated Safety Management (ISM). The Board rejected the implementation plan in a letter to DOE on February 14, 2005, and identified areas requiring further attention. Since that time, DOE has delivered a more thorough implementation plan, which was accepted by the Board August 5, 2005, and has taken steps to create a DOE and an NNSA Office of the Central Technical Authority (CTA), and a Nuclear Safety Research function. DOE has also issued two DOE directives on DOE Oversight process. The Board will continue to monitor DOE's progress in upgrading its technical staffing and qualification of federal safety assurance personnel, establishing new processes and criteria for safety delegations, implementing its Operating Experience Program, and reinvigorating its ISM System to improve its work planning and work control.

NNSA Facility Representative Staffing and Training. In March 2004, the Board conducted on-site reviews of the staffing levels and training of Facility Representatives (FR) at the Pantex Site Office, the Sandia Site Office, and the Los Alamos Site Office. The Board observed that these three NNSA sites were not staffed with a sufficient number of FRs to perform their facility oversight responsibilities. Further, two sites had been under reporting their FR staffing needs for the past four years. Contributing to this deficiency is that the guidance in the FR staffing analysis in DOE-STD-1063-2000, *Facility Representatives*, did not adequately account for all of the hazardous facilities for which DOE and NNSA have oversight responsibility, and did not capture all of the FR work demands. During the review, the FR continuing training programs were found to be unstructured, informal, and generally weak in execution. In a letter dated May 14, 2004, the Board noted these concerns. During the latter part of 2004 and into 2005, NNSA has taken steps to improve its activity-specific hazard training for Facility Representatives. NNSA also developed and executed a more rigorous staffing analyses that determined that 20 additional Facility Representatives were needed at six NNSA sites. However, funding only allowed hiring 5 FRs in FY 2005, and a budget request for 15 more FR positions has been submitted for FY2006. Additionally, the guidance for the FR staffing analysis in DOE-STD-1063-2000 is being revised, and projected for re-issuance in mid-2006.

Software Quality Assurance (SQA). The Board issued Recommendation 2002-1, *Quality Assurance for Safety-Related Software*, to correct problems caused by inadequate design, implementation, testing, and configuration management of safety-significant computer software. During the past year, DOE has completed identification, selection, and assessments of safety system software and firmware at its defense nuclear facilities. In addition, DOE has made someprogress in properly training and qualifying personnel assigned to SQA positions to the requirements of DOE-STD-1172-2003, *Safety SQA Functional Area Qualification Standard.* Finally, DOE has issued three SQA- related directives and has revised DOE M 411.1C, *Safety Management Functions, Responsibilities and Authorities Manual* to reflect software-related organizational changes and responsibilities.

Chapter 3
Auditor's Report and Financial Statements

BACKGROUND

The DNFSB is a micro agency with a staff of 91 FTEs and $21.4 million in total budgetary resources for FY 2005. To ensure that scarce resources are dedicated to fulfilling the demanding health and safety oversight mission, the DNFSB has adopted the "economies of scale" philosophy for obtaining needed administrative support services, relying on Interagency Agreements with the Bureau of the Public Debt's Administrative Resource Center, the General Services Administration's Heartland Finance Center, and the Public Health Service to obtain support for accounting, personnel, payroll and health services on a fee-for-service basis. Consequently, the DNFSB has never employed any accountants on its small administrative staff, as it is neither practical or desirable for us to attempt to duplicate the speciality services offered to small agencies by authorized service providers such as GSA.

As noted in Chapter 1 of this report, FY 2004 was the first year that the DNFSB prepared an audited financial statement under the requirements of the Accountability of Tax Dollars Act of 2002. Due to the unbudgeted expense for the audit and the fact that both GSA and the Bureau of Public Debt were not prepared to support an audit of their respective accounting and payroll support systems, the DNFSB requested and received a waiver of the audit requirements for FY 2003 from the Office of Management and Budget (OMB).

As has been the case with many small agencies, the DNFSB encountered significant difficulties in providing the financial data needed by our independent auditor, Cotton & Company LLP, to complete its FY 2004 financial audit. With FY 2004 being the first year that the DNFSB was audited, Cotton and Company issued a disclaimer on the Board's financial statements.

On a positive note, the previous auditing work conducted by Cotton and Company, LLP for FY 2004 established a baseline of accounting information that helped the DNFSB staff prepare for our FY 2005 financial audit. The experience gained by our staff during the FY 2004 audit process also provided valuable "lessons learned" for the DNFSB to plan for the FY 2005 audit. Not only was the DNFSB staff able to resolve many of the unanswered questions resulting from the previous year's audit, we also developed a better understanding of the financial data that the DNFSB would need to develop in-house or ensure that our administrative service providers prepared on our behalf via Interagency Agreements.

SUMMARY OF FY 2005 AUDIT RESULTS

The DNFSB contracted with Cotton and Company, LLP to perform an independent audit of the Balance Sheets of the DNFSB as of September 30, 2005, and 2004, and the related Statements of Net Cost, Changes in Net Position, Budgetary Resources, and Financing for the years then ended. The auditor's report, together with accompanying reports on compliance with laws and regulations, and internal control are included in their entirety in this Chapter.

Because beginning balances for FY 2005 were not audited, Cotton and Company was not able to express an opinion on the Statements of Net Cost, Changes in Net Position, Budgetary Resources, and Financing for the year ending September 30, 2005. The auditor did find that the Balance Sheet referred to above presents fairly, in all material respects, the financial position of the Board as of September 30, 2005, in conformity with generally accepted accounting principles. The DNFSB also was pleased to learn that the auditor found no material inconsistencies with Management's Discussion and Analysis and the financial statements.

In regard to compliance with laws and regulations, Cotton and Company tested the DNFSB's compliance with the Federal Financial Management Improvement Act (FFMIA), reporting on whether the DNFSB's financial management systems substantially comply with Federal financial management systems requirements, applicable Federal accounting standards, and the U.S. Governments Standard General Ledger at the transaction level. The auditor reported one instance in which the DNFSB's financial management systems do not substantially comply with applicable Federal accounting standards. The auditor made a similar finding in their 2004 report.

Specifically, the auditor's report on internal control noted three matters involving matters that the auditor considered to be reportable conditions, the first two being material weaknesses. The material weaknesses involve the financial reporting procedures and ownership of the financial statements, and the reportable condition involves internal control over information systems.

In general, the DNFSB staff was not aware of many of the accounting and financial statement reporting requirements contained in OMB Circular A-136. The auditor demonstrated great patience during the course of the audit, allowing the DNFSB staff to make correcting entries in coordination with our GSA accountants. The DNFSB will act upon the auditor's findings and recommendations to the extent that resources permit, as we prepare for the FY 2006 audit. In particular, the DNFSB will develop written procedures to clarify who is responsible for preparing the information needed for financial reporting, the GSA accounting staff or the DNFSB staff.

The auditor focused particular attention on the responsibility of DNFSB management to prepare the annual financial statements. To carry out this responsibility, the auditor stressed the point that the DNFSB must assign resources to review the work of the GSA accounting staff, agree with what GSA is recording and reporting in their financial system, provide additional information as needed, and request changes as necessary.

The auditor's findings concerning financial statement ownership are appreciated by the DNFSB. However, the DNFSB does not have sufficient resources, in particular an accountant on its staff, to totally satisfy the independent auditor's recommendations in this area. Since the auditor's findings and recommendations regarding the ownership of and commensurate responsibility for our financial statements will be a reoccurring finding if not corrected, the DNFSB will discuss the need for additional accounting resources with the Office of Management and Budget.

REVIEW OF DNFSB INTERNAL CONTROL OF INFORMATION SYSTEMS

As part of our independent auditor's report on internal control, Cotton & Company reviewed DNFSB's internal control over financial reporting by obtaining an understanding of our internal control, determining if internal control had been placed in operation, assessing control risk, and performing tests of control. Our

auditor noted that while the DNFSB had made some progress in addressing known information technology weaknesses, such as implementing an overall information system security program and an online security awareness training program, there are several significant weaknesses in the DNFSB's management of information systems.

In general, the DNFSB agrees with the majority of the auditor's findings and recommendations in the area of internal control of information systems. Most of these control weaknesses are known to the DNFSB, and are the result of a lack of written policies and procedures to guide ongoing information technology operations. As a small agency with limited resources, the DNFSB has focused its resources on providing reliable IT support operations, and recognizes that the preparation of assessments and procedures has not received priority attention. The DNFSB will make a reasonable and cost-effective effort in FY 2006 to correct the internal control weaknesses that present the highest potential impact to our IT resources.

In their FY 2004 audit report, our independent auditor cited as a material weakness the fact that DNFSB and its external service provider, GSA, did not effectively coordinate removal of disposed and obsolete property from DNFSB's accounting records in a timely manner. The FY 2005 audit reported that the DNFSB had made sufficient progress on the accounting of property that the auditor no longer considered it to be a material weakness.

Cotton & Company LLP
635 Slaters Lane
4th Floor
Alexandria, VA 22314

P: 703.836.6701
F: 703.836.0941
www.cottoncpa.com

Chairman of the Board
Defense Nuclear Facilities Safety Board

INDEPENDENT AUDITOR'S REPORT

We audited the accompanying Balance Sheets of the Defense Nuclear Facilities Safety Board as of September 30, 2005, and 2004, and the related Statements of Net Cost, Changes in Net Position, Budgetary Resources, and Financing for the years then ended. These financial statements are the responsibility of the Board's management. Our responsibility is to express an opinion on the financial statements based on our audit.

Except as discussed in the following paragraphs, we conducted our audits in accordance with *Government Auditing Standards,* auditing standards generally accepted in the United States of America, and OMB Bulletin 01-02, *Audit Requirements for Federal Financial Statements*. These standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

For Fiscal Year (FY) 2004, (1) the scope of our audit precluded us from auditing certain beginning FY 2004 balances, (2) the Board did not have a process to analyze expenditures in accordance with Federal Financial Accounting Standards and properly capitalize and expense costs related to investments in internal use software, and (3) management was unable to provide sufficient documentation in a timely manner to satisfy us that certain account balances were fairly stated. Moreover, we were unable to apply other auditing procedures regarding the three scope limitations discussed above. Accordingly, we were not able to express, and we did not express, an opinion on the financial statements as of and for the year ended September 30, 2004.

Because beginning balances for FY 2005 were not audited, the scope of our work was not sufficient to enable us to express, and we do not express, an opinion on the Statements of Net Cost, Changes in Net Position, Budgetary Resources, and Financing for the year ended September 30, 2005.

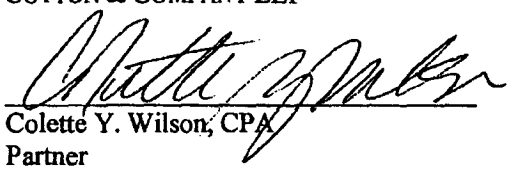
In our opinion, the Balance Sheet referred to in the first paragraph above presents fairly, in all material respects, the financial position of the Board as of September 30, 2005, in conformity with accounting principles generally accepted in the United States of America.

Management's Discussion and Analysis (MD&A) and other accompanying information are a not part of the Board's basic financial statements. For MD&A, which is required by OMB Circular A-136, *Financial Reporting Requirements*, and the Financial Accounting Standards Advisory Board, we made certain inquiries of management and compared the information for consistency with the Board's audited financial statements and against other knowledge we obtained during our audit. For other accompanying information, we compared the information with the financial statements. Based on these limited

procedures, we found no material inconsistencies with the financial statements. We did not audit the MD&A or the other accompanying information and therefore express no opinion on them.

In accordance with *Government Auditing Standards*, we issued separate reports dated March 3, 2006, on the Board's internal control and compliance with laws and regulations. Our reports on internal control and compliance are an integral part of an audit conducted in accordance with *Government Auditing Standards* and, in considering audit results, these reports should be read together with this report.

COTTON & COMPANY LLP



Colette Y. Wilson, CPA
Partner

March 3, 2006
Alexandria, Virginia

Cotton & Company LLP
635 Slaters Lane
4th Floor
Alexandria, VA 22314

P: 703.836.6701
F: 703.836.0941
www.cottoncpa.com

Chairman of the Board
Defense Nuclear Facilities Safety Board

INDEPENDENT AUDITOR'S REPORT ON COMPLIANCE WITH LAWS AND REGULATIONS

We audited the Balance Sheets of the Defense Nuclear Facilities Safety Board as of September 30, 2005, and 2004, and the related Statements of Net Cost, Changes in Net Position, Budgetary Resources, and Financing for the years then ended. We have issued our report thereon dated March 3, 2006. We conducted our audits in accordance with generally accepted auditing standards; standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States; and Office of Management and Budget (OMB) Bulletin 01-02, *Audit Requirements for Federal Financial Statements.*

The Board's management is responsible for complying with laws and regulations applicable to the agency. As part of obtaining reasonable assurance about whether the agency's financial statements are free of material misstatement, we performed tests of the Board's compliance with certain provisions of laws and regulations, noncompliance with which could have a direct and material effect on the determination of financial statement amounts, and certain other laws and regulations specified in OMB Bulletin 01-02, including requirements referred to in the Federal Financial Management Improvement Act (FFMIA) of 1996. We limited our tests of compliance to these provisions, and we did not test compliance with all laws and regulations applicable to the Board.

The results of our tests of compliance disclosed no instances of noncompliance with other laws and regulations discussed in the preceding paragraph, exclusive of FFMIA, that we are required to report under *Government Auditing Standards* or OMB Bulletin 01-02.

Under FFMIA, we are required to report whether the Board's financial management systems substantially comply with federal financial management system requirements, applicable federal accounting standards, and the United States Government Standard General Ledger (SGL) at the transaction level. To meet this requirement, we performed tests of compliance with FFMIA Section 803(a) requirements.

The results of our tests disclosed instances, described below, in which the Board's financial management systems do not substantially comply with federal financial management system requirements. We noted no instances in which the Board's financial management systems do not substantially comply with applicable federal accounting standards and the SGL.

The Board's financial management system was not in substantial compliance with federal financial management system requirements as the result of information system control and security issues. These conditions are reported more fully in the Independent Auditor's Report on Internal Control as a reportable condition, along with our recommendations.

Status of Prior-Year Noncompliance with FFMIA

In the 2004 Report on Compliance, we reported that the Board's financial management system was not in substantial compliance with federal financial management system requirements, because the core system

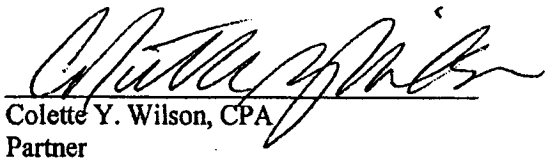
was not able to provide complete, reliable, and consistent financial management information on programs in a timely manner; access control, segregation-of-duty, and other general control weaknesses existed; and the Board could not support the valuation of several financial statement line items. Moreover, we reported that the financial management system was not in substantial compliance with the SGL at the transaction level.

As discussed above, the Board's financial management system continues to be in substantial non-compliance with FFMIA. The status of the items identified above is discussed in the section titled Status of Prior-Year Internal Control Weaknesses in this year's Independent Auditor's Report on Internal Control.

Providing an opinion on compliance with certain provisions of laws and regulations was not an objective of our audit and, accordingly, we do not express such an opinion.

This report is intended solely for the information and use of the Board's management, OMB, and Congress. It is not intended to be and should not be used by anyone other than these specified parties.

COTTON & COMPANY LLP



Colette Y. Wilson, CPA
Partner

March 3, 2006
Alexandria, Virginia

Cotton & Company

Cotton & Company LLP
635 Slaters Lane
4th Floor
Alexandria, VA 22314

P: 703.836.6701
F: 703.836.0941
www.cottoncpa.com

Chairman of the Board
Defense Nuclear Facilities Safety Board

INDEPENDENT AUDITOR'S REPORT ON INTERNAL CONTROL

We audited the Balance Sheets of the Defense Nuclear Facilities Safety Board as of September 30, 2005, and 2004; and the related Statements of Net Cost, Changes in Net Position, Budgetary Resources, and Financing for the years then ended. We have issued our report thereon dated March 3, 2006. We conducted our audits in accordance with generally accepted auditing standards; standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and Office of Management and Budget (OMB) Bulletin 01-02, *Audit Requirements for Federal Financial Statements*.

In planning and performing our audit, we considered the Board's internal control over financial reporting by obtaining an understanding of the agency's internal control, determining if internal control had been placed in operation, assessing control risk, and performing tests of controls to determine auditing procedures for the purpose of expressing our opinion on the financial statements. We limited internal control testing to those controls necessary to achieve objectives described in OMB Bulletin 01-02. We did not test all internal control relevant to operating objectives as broadly defined by the Federal Managers' Financial Integrity Act of 1982, such as those controls relevant to ensuring efficient operations. The objective of our audit was not to provide assurance on internal control. Consequently, we do not provide an opinion on internal control.

Our consideration of internal control over financial reporting would not necessarily disclose all matters in internal control over financial reporting that might be reportable conditions. Under standards issued by the American Institute of Certified Public Accountants, reportable conditions are matters coming to our attention relating to significant deficiencies in the design or operation of internal control that, in our judgment, could adversely affect an agency's ability to record, process, summarize, and report financial data consistent with management assertions in the financial statements. Material weaknesses are reportable conditions in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements in amounts that would be material in relation to the financial statement being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions. Because of inherent limitations in internal control, misstatements, losses, or noncompliance may nevertheless occur and may not be detected.

We noted three matters involving the internal control and its operation that we considered to be reportable conditions; we consider the first two to be material weaknesses. The material weaknesses involve the financial reporting procedures and ownership of the financial statements and the reportable condition involves internal control over information systems.

I. FINANCIAL REPORTING PROCEDURES

Under a Memorandum of Understanding and Agreement (MOU) between the General Services Administration (GSA) and the Board, GSA provided financial reporting services, including preparation of financial statements and footnotes, and performed all necessary accounting functions related thereto for Fiscal Year (FY) 2005. The MOU calls for coordination between the Board and GSA to identify data needed by GSA that is not available to it internally to prepare financial statements in accordance with Federal Accounting Standards.

The Board does not have written financial reporting procedures. As a result, several material transactions were not reported to GSA, along with other transactions, which resulted in incomplete general ledger and financial statement line item balances. The Board was unaware of these matters until we identified them during the course of our audit.

The most significant examples of this issue follow:

- $707,404 in imputed costs absorbed by other federal agencies was not recorded in the general ledger or reported on the financial statements. Neither GSA nor the Board was aware of the need to report these imputed costs even though such recording and reporting is required by the Federal Accounting Standards and by OMB Circular A-136, *Financial Reporting Requirements.* When we brought this to the attention of the Board, the Board provided this information to GSA. GSA recorded the event and reported imputed costs on the revised financial statements. In addition, the estimated liability for future workers' compensation payments and yearend liability to the Department of Labor for workers' compensation payments were not recorded in the initial financial statements.

- $106,760 in payroll and leave accruals was not recorded. These accruals were for bonuses, restored leave, and lump-sum payments earned but not recorded or included in amounts reported on the financial statements. The Board was unaware of the need to report these items even though such recording and reporting is required by the Federal Accounting Standards. The information necessary to accrue these amounts was not available internally to GSA, and therefore the Board should have provided it. Subsequent to identification of these issues, the Board calculated this information and provided it to GSA, and GSA reported it in the financial statements.

In addition, certain financial statement line items were misreported, and footnotes were missing or incomplete. The Board could have corrected and included these items in the financial statements in a timely manner, before submitting them for audit, if it had monitored financial statement preparation and accurately reviewed statements provided by GSA. The most significant examples of this issue follow:

- Liabilities of $1.8 million were initially reported on the balance sheet. Of this amount, $1.3 million was reported as "Other" without any further identification, which is required by OMB Circular A-136. After we brought this matter to the Board's attention, the $1.3 million was more accurately reported as Accrued Funded Payroll and Leave ($498,908) and Unfunded Leave ($830,320).

- Effective for FY 2005 reporting, OMB Circular A-136 requires that the Statement of Changes in Net Position include a line item to report the amount of net change. The Board added this line item after we informed it of this requirement.

- OMB Circular A-136 requires a footnote explaining differences between the Statement of Budgetary Resources and the Budget of the United States Government. The Board did not have this footnote until we advised it of the requirement.

Recommendations

We recommend that the Board:

1. Coordinate with GSA to identify all information needed for financial reporting, including footnotes, as stated in its MOU, and identify what information needs to be provided by the Board.

2. Establish written procedures for collecting the identified information to be provided to GSA, along with timelines.

3. Establish written procedures to ensure that all financial reporting requirements of OMB Circular A-136 (or current OMB guidance) are met.

Management Response

The Board concurs with the recommendations and will work to implement them during FY 2006.

II. OWNERSHIP OF THE FINANCIAL STATEMENTS

OMB Circular A-136 states that preparation of annual financial statements is the responsibility of agency management. To carry out this responsibility, the Board should be in a position to review the work of GSA, agree with what GSA is recording and reporting, provide additional information as needed, and request changes when necessary.

The Board did not provide this oversight during preparation of the FY 2005 financial statements. It did not attempt to review the work of GSA, and, if it had, GSA's financial processing and reporting were not sufficiently transparent for the Board to understand what had or had not been recorded. The Board and GSA should agree on the reports that the Board needs to monitor monthly transactions. Further, GSA did not provide, and the Board did not request, documentation of its work, including crosswalks from the general ledger to the financial statements and support for the footnotes.

Examples of matters the Board should have detected had it monitored GSA's work are below. In each example, if GSA had provided the Board with details on account balances, and if the Board had been monitoring the financial information, these errors would have been detected and corrected in a timely manner, rather than after yearend, and the audit was underway.

- The Accounts Payable balance was initially reported as $472,515. Of this amount, $272,876 was a prior-year accrual, which should have been reversed at the beginning of FY 2005.

- Only $10,501 was initially reported as intragovernmental accounts payable. A total of $119,738 in payables to other federal agencies was reported as public accounts payable, instead of being reported as intragovernmental.

- The FY 2004 yearend payroll accrual was not reversed, and the FY 2005 yearend accrual was not posted until we brought this oversight to the Board's attention.

Recommendations

We recommend that the Board:

1. Periodically review account balances and account composition to ensure that transactions are properly reported.

2. Designate an individual or group of individuals to review the financial statements and footnotes prepared by GSA to ensure they are accurate and comply with OMB Circular A-136 (or current guidance).

3. Review and approve all adjustments made to its general ledger

Management Response

The Board concurs with the recommendations and will work to implement them during FY 2006.

III. INFORMATION SYSTEMS

The Board's internal control over information systems was weak. During FY 2005, the Board made some progress in addressing known information technology weaknesses, such as implementing an overall information system security program and an online security awareness training program. As part of our review in accordance with the *Federal Information System Controls Audit Manual* (FISCAM), we identified significant weaknesses in the Board's management of information systems.

The most significant of these issues are described below.

A. Oversight of Outsourced Information Systems

The Board outsources its major financial system, Pegasys, to GSA. FY 2005 was the first year in which GSA provided an SAS 70 report to the Board documenting system controls. The Board does not have policies or procedures in place to review SAS 70 reports and ensure that third-party service-provider controls are adequate. Additionally, the Board has not implemented controls that ensure that all customer consideration controls described in SAS 70 reports are fully implemented. The Board has not documented procedures for protecting financial data provided to and maintained by outside entities, including GSA.

Recommendations

We recommend that the Board improve oversight of outsourced information systems by:

1. Implementing procedures to ensure that internal control at third-party service providers is adequate and complete.

2. Ensuring that required security controls are documented and agreed upon by both parties before sharing financial data with outside entities.

Management Response

Management concurs. See the Appendix for the Board's complete response.

B. Certifications and Accreditations for Major Information Systems

The Board has not taken procedures to assure that major information systems, such as the General Support System (GSS) and major applications, are appropriately certified and accredited. The Board has not:

- Subjected these systems to certification and accreditation processes.
- Ensured that the systems have been authorized or accredited by the managers whose mission they support.
- Performed and documented risk assessments.

In addition, the Board has not documented a system security plan for GSS that fully addresses topics prescribed by OMB Circular A-130, *Management of Federal Information Resources*, and National Institute of Standards and Technology (NIST) Special Publication (SP) 800-18, *Guide for Developing Security Plans for Information Technology Systems*, for general support systems.

Further, the Board did not test its Continuity of Operations Plan during FY 2005. Senior management did not initiate prompt action to correct known deficiencies. Six of twelve recommendations listed in the Plan of Action and Milestone (POA&M) report remain open.

As a result of these conditions, management increases the risk that sensitive data are not adequately protected at all times. This reportable condition was also cited in our report on Compliance with Laws and Regulations as noncompliance with the Federal Financial Management Improvement Act of 1996.

Recommendations

We recommend that the Board improve the Certification and Accreditation (C&A) process to ensure that it meets guidance provided by NIST SP 800-37, *Guide for the Security Certification and Accreditation of Federal Information Systems*. As part of a comprehensive C&A process, we recommend that management ensure that:

1. All general support systems and major applications undergo the C&A process every 3 years or as major changes occur.
2. Risk assessments are performed for each system in accordance with NIST SP 800-30, *Risk Management Guide for Information Technology Systems*.
3. System security plans are documented and maintained for each system in accordance with NIST SP 800-18.
4. Contingency plans for significant agency systems are tested at least annually.
5. Management maintains a list of known vulnerabilities in systems (POA&M) and initiates prompt corrective action.

Management Response

Management concurs. See the Appendix for the Board's complete response.

Status of Prior-Year Internal Control Weaknesses

We reported two material weaknesses and one reportable condition in FY 2004. The material weaknesses addressed the accounting for disposed and obsolete property and equipment, and financial reporting. The reportable condition addressed controls for information systems. While more remains to be accomplished, the Board has made sufficient progress on the accounting for property that we no longer consider it to be a material weakness. The Board also made notable progress in improving the other two areas, but neither was resolved, and they remain as a material weakness and a reportable condition as noted above.

With respect to internal control related to significant performance measures included in Management's Discussion and Analysis, the Board reported no quantitative performance measures. Accordingly, we could not obtain an understanding of the design of internal control relating to existence and completeness assertions, as required by OMB Bulletin 01-02.

We noted other nonreportable matters involving internal control and its operation that we will communicate in a separate management letter.

This report is intended solely for the information and use of Board management, OMB, and Congress. It is not intended to be and should not be used by anyone other than these specified parties.

COTTON & COMPANY LLP

Colette Y. Wilson, CPA
Partner

March 3, 2006
Alexandria, Virginia

APPENDIX

DNFSB RESPONSE TO FY 2005 INFORMATION SYSTEM CONTROLS FINDINGS

A. Oversight of Outsourced Information Systems

Management's Response.

The DNFSB understands the importance of customer controls described in the GSA Pegasys SAS 70 report. FY 2005 is the first year that the DNFSB received a SAS 70 from any of its third party service providers. GSA's SAS 70 was not received until October of 2005, which did not leave the DNFSB adequate time to review our customer controls and determine if they were in place and working prior to the completion of the independent auditor's review. The DNFSB will thoroughly review the customer controls portion of all SAS 70 reports it receives, and will strive to implement any controls required by third-party service providers that are not already being performed. In addition, the DNFSB will review the language of all third party service provider agreements to ensure that they specify adequate security controls to protect the DNFSB's information. Any necessary changes will be negotiated with the DNFSB's service providers when the terms of the current agreements expire.

The DNFSB understands that while it can outsource the processing of agency information, it cannot outsource responsibility for the security of DNFSB information. As the DNFSB develops its risk management policies and procedures, one of the policies that will be documented is a requirement ensuring language that clearly defines the security controls the DNFSB requires to protect its information will be included in all agreements (contracts, inter-agency agreements and MOA/MOUs) entered into with third-party service providers.

B. Certifications and Accreditations for Major Information Systems

Management's Response.

The DNFSB has conducted independent assessments of its IT controls in recent years, including reviews of the DNFSB's internal controls performed as part of its FY 2004 and FY 2005 financial statements audits, and a review of the status of the DNFSB's information technology (IT) security program performed by the National Institute of Standards and Technology (NIST) that was completed in 2004. The results of both of these efforts helped guide the development of the DNFSB's Information Systems Security Program (ISSP), which was established in July of 2005. The ISSP lays out the DNFSB's responsibilities for securing agency information, including the requirement to perform risk assessments and integrate the results into the DNFSB's IT systems development.

The DNFSB is currently developing detailed policies and procedures to allow it to fully implement the duties and responsibilities contained in its Information Systems Security Program (ISSP), including the need to certify and accredit DNFSB IT systems. The DNFSB understands the importance of a functional C&A process in ensuring the security of DNFSB information, and the development of these additional documents will allow the DNFSB to fully implement a C&A process. The DNFSB is also currently evaluating the cost/benefit of external contractor support to assist with performing risk assessments and other portions of the C&A process. Relying on the assistance of external contractors may allow the DNFSB to shorten the time required to implement an effective C&A process and C&A the Board's IT systems.

While the DNFSB has documented a System Security Plan (SSP) for its General Support System (GSS), it agrees with the finding of the independent auditor that additional information should be added to certain

sections of the SSP, and that the inclusion of this additional information would give the DNFSB a more accurate picture of the security controls in place and the risks faced by its GSS. This will in turn play an important part in the development of the DNFSB's C&A process as well.

While the DNFSB has not addressed all known deficiencies identified by prior assessments, the DNFSB did correct the three prior control weaknesses included in the independent auditor's report. The DNFSB does take previously identified issues seriously, and has selected the most serious issues for priority corrective action given the limited resources available. Most of the known deficiencies relate to a lack of written policy, procedures, and adequate documentation. The development of the DNFSB's comprehensive ISSP has created a framework which will allow the DNFSB to develop the missing policy, procedures, and documentation, resolving many of the remaining deficiencies identified by our auditor. The DNFSB has developed, and maintains, plans of actions & milestones (POA&M) to track identified weaknesses and report on progress made in correcting them. The DNFSB's POA&Ms are submitted to OMB as required by FISMA.

The DNFSB understands the important role that having a fully functional Continuity of Operation Plan (COOP) plays in protecting DNFSB information and ensuring that the agency can continue its mission in the event of emergencies. The DNFSB has developed a detailed COOP, and this plan is updated on a regular basis. In addition, the Board tests communications from its alternate facility on a monthly basis. To ensure that the DNFSB's COOP will function as planned, the DNFSB agrees with its independent auditor that testing of the plan needs to be formally established. The DNFSB will test the COOP by operating from the DNFSB's alternate facility and the results from this test will be used to update and refine the DNFSB's COOP. In addition to improvements to the COOP, which assumes that the DNFSB's headquarters location and associated IT assets are unavailable, the DNFSB realizes that it needs to improve contingency planning for its IT assets in the event of a localized incident. Therefore, the DNFSB is currently developing plans for providing redundancy for the majority of DNFSB IT services. This redundant capability can also be used in the event of significant event that would require the DNFSB to activate its COOP.

By taking the steps described above, the DNFSB will strengthen control over sensitive data (e.g., financial transactions and budget information). It should be noted that no disclosures or loss of sensitive data were observed during this review, or any other prior review of the DNFSB's information systems.

FY 2005
DEFENSE NUCLEAR FACILITIES SAFETY BOARD
Performance and Accountability Report

PRINCIPAL STATEMENTS

For the years ending September 30, 2005, and 2004

Limitations of the Financial Statements

The principal financial statements have been prepared by the GSA Heartland Finance Center on behalf of the DNFSB to report the financial position and results of operations of the DNFSB, pursuant to the requirements of 31 U.S.C. 3515 (b).

While the statements and accompanying footnotes have been prepared from the books and records maintained by GSA for the DNFSB in accordance with generally accepted accounting principles (GAAP) for Federal entities and the formats prescribed by OMB, the statements are in addition to the financial reports used to monitor and control budgetary resources which are prepared from the same books and records. The statements should be read with the realization that they are for a component of the U.S. Government, a sovereign entity.

The DNFSB's FY 2005 financial statements were audited by Cotton and Company, LLP, under contract to the DNFSB. Because beginning balances for FY 2005 were not audited, the scope of our work was not sufficient to enable Cotton and Company to express an opinion on the Statements of Net Cost, Changes in Net Position, Budgetary Resources, and Financing for the year ended September 30, 2005.

Cotton and Company did express an opinion that the Balance Sheet presents fairly, in all material respects, the financial position of the DNFSB as of September 30, 2005, in conformity with accounting principles generally accepted in the United States of America.

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

APPROPRIATED FUND

FINANCIAL STATEMENTS

As Of and For The Years Ended September 30, 2005 and 2004

THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD

BALANCE SHEET

As Of September 30, 2005 and 2004

		2005	2004
Assets:			
Intragovernmental:			
Fund Balance With Treasury	(Note 2)	$ 6,352,070	$ 5,949,812
Total Intragovernmental		6,352,070	5,949,812
Accounts Receivable	(Note 3)	9,450	12,403
General Property, Plant and Equipment, net	(Note 4)	154,684	176,948
Other	(Note 5)	11,100	13,000
Total Assets		$ 6,527,304	$ 6,152,163
Liabilities:	(Note 6)		
Intragovernmental:	(Note 7)		
Accounts Payable		$ 10,501	$ 270,904
Employee Benefits		$ 119,738	$ -
Total Intragovernmental		130,239	$ 270,904
Accounts Payable		206,759	493,719
Other	(Note 8)		
Accrued Funded Payroll and Leave		498,908	451,865
Unfunded Leave		830,320	812,224
Workers' Compenstion	(Note 9)	2,213	1,192
Total Liabilities		1,668,439	2,029,904
Net Position:			
Unexpended Appropriations		6,370,439	4,733,324
Cumulative Results of Operations		(1,511,574)	(611,065)
Total Net Position		4,858,864	4,122,259
Total Liabilities and Net Position		$ 6,527,304	$ 6,152,163

The accompanying notes are an integral part of these statements.

THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD

STATEMENT OF NET COST

For The Years Ended September 30, 2005 and 2004

	2005	2004
Program Costs:		
DNFSB:		
Intragovernmental Gross Costs	$ 3,047,707	$ 2,693,321
Intragovernmental Total Costs	3,047,707	2,693,321
Gross Costs with the Public	17,028,948	19,264,001
Net Costs with the Public	17,028,948	19,264,001
Total Program Cost	20,076,655	21,957,322
Net Cost of Operations	$ 20,076,655	$ 21,957,322

The accompanying notes are an integral part of these statements.

THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD

STATEMENT OF CHANGES IN NET POSITION

For The Years Ended September 30, 2005 and 2004

	2005 Cumulative Results Of Operations	2005 Unexpended Appropriations	2004 Cumulative Results Of Operations	2004 Unexpended Appropriations
Beginning Balances	$ (611,065)	$ 4,733,324	$ 213,584	$ 6,423,281
Prior Period Adjustment	(1,307,403) *1	1,307,403 *1	(886)	
Beginning Balances as Adjusted	$ (1,918,467)	$ 6,040,727	$ 212,698	$ 6,423,281
Budgetary Financing Sources;				
Appropriations Received		20,268,000		19,559,000
Other Adjustments (rescissions, etc) (+/-)		(162,144)		(115,398)
Appropriations Used	19,776,144	(19,776,144)	21,133,559	(21,133,559)
Other Financing Resources;				
Imputed Financing from Costs Absorbed by Others	707,404			
Total Financing Sources	20,483,548	329,712	21,133,559	(1,689,957)
Net Cost of Operations (+/-)	20,076,655		21,957,322	
Net Change	406,893		(823,763)	
Ending Balances	$ (1,511,574)	$ 6,370,439	$ (611,065)	$ 4,733,324

The accompanying notes are an integral part of these statements.

THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD

STATEMENT OF BUDGETARY RESOURCES

For The Years Ended September 30, 2005 and 2004

		2005	2004
		Budgetary	Budgetary
Budgetary Resources:			
Budget Authority:			
Appropriations Received		$ 20,268,000	$ 19,559,000
Unobligated Balance:			
Beginning of Period		962,560	2,477,974
Spending Authority from Offsetting Collections:			
Earned			
Collected		5,728	3,571
Subtotal		5,728	3,571
Recoveries of Prior Year Obligations		366,543	917,500
Permanently Not Available		(162,144)	(115,398)
Total Budgetary Resources		$ 21,440,687 *	$ 22,842,647
Status of Budgetary Resources			
Obligations Incurred			
Direct		$ 20,050,966	$ 21,880,087
Unobligated Balances			
Apportioned		1,017,450	41,489
Unobligated Balances - Not Available		372,271	921,071
Total Status of Budgetary Resources		$ 21,440,687	$ 22,842,647
Relationship of Obligations to Outlays:			
Obligated Balance, Net, Beginning of Period		$ 4,987,251	$ 4,961,596
Obligated Balance, Net, End of Period:			
Undelivered Orders		4,126,442	3,770,764
Accounts Payable		835,906	1,216,488
Outlays:			
Disbursements		19,709,326	20,936,931
Collections		(5,728)	(3,571)
Subtotal		19,703,598	20,933,360
Less: Offsetting Receipts			
Net Outlays	(Note 10)	$ 19,703,598	$ 20,933,360

* difference is due to rounding

The accompanying notes are an integral part of these statements.

THE DEFENSE NUCLEAR FACILITIES SAFETY BOARD

STATEMENT OF FINANCING

For The Years Ended September 30, 2005 and 2004

		2005	2004
Resources Used to Finance Activities:			
Budgetary Resources Obligated			
Obligations Incurred		$ 23,050,966	$ 21,880,087
Less: Spending Authority from Offsetting Collections and Recoveries		372,271	921,071
Net Obligations		19,678,695	20,959,016
Other Resources			
Imputed Financing from Costs Absorbed by Others		707,404	
Total Resources Used to Finance Activities		20,386,099	20,959,016
Resources Used to Finance Items not Part of the Net Cost of Operations			
Change in Budgetary Resources Obligated for Goods Services and Benefits Ordered But Not Yet Provided (+/-)		363,779	(161,044)
Resources that Finance the Acquisition of Assets or Liquidation of Liabilities (+/-)		36,998	79,197
Other Resources or Adjustments to Net Obligated Resources That Do Not Affect Net Cost of Operations (+/-)			7,287
Total Resources Used to Finance Items Not Part of the Net Cost of Operations		390,777	(74,560)
Total Resources Used to Finance the Net Cost of Operations		19,995,323	21,033,576
Components of the Net Cost of Operations that will not Require or Generate Resources in the Current Period	(Note 11)		
Components Requiring or Generating Resources in Future Periods:			
Increase in Annual Leave Liability		18,096	912,324
Increase in Exchange Revenue Receivable from the Public			(5,638)
Other (+/-)		1,021	1,152
Components Not Requiring or Generating Resources:			
Depreciation and Amortization		62,216	6,801
Revaluation of Asset or Liabilities (+/-)			139,167
Total Components of Net Cost of Operations that Will Not Require or Generate Resources in the Current Period		81,333	923,746
Net Cost of Operations		$ 20,076,656	$ 21,957,322

The accompanying notes are an integral part of these statements.

5

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

APPROPRIATED FUND

Note 1 – Significant Accounting Policies

Reporting Entity

The Defense Nuclear Facilities Safety Board (Board) is an independent Federal government agency with responsibility for the oversight of the Department of Energy (DOE)'s defense nuclear facilities located throughout the United States. The Board is directed by a Chairman and four members appointed by the President. The Board's mission as described by the Atomic Energy Act is to ensure that the public health and safety are adequately protected at the DOE defense nuclear facilities.

Basis of Presentation

These financial statements have been prepared from the accounting records of The Defense Nuclear Facilities Safety Board in accordance with generally accepted accounting principles (GAAP) as promulgated by the Federal Accounting Standards Advisory Board (FASAB), and OMB (Office of Management and Budget) Circular A-136, "Financial Reporting Requirements". GAAP for Federal entities is the Hierarchy of accounting principles prescribed in the American Institute of Certified Public Accountant's (AICPA) Statement on Auditing Standards No. 91, *Federal GAAP Hierarchy.*

Circular A-136, requires agencies to prepare principal statements, which include a Balance Sheet, a Statement of Net Cost, a Statement of Changes in Net Position, a Statement of Budgetary Resources and a Statement of Financing. The balance sheet presents, as of September 30, 2005, amounts of future economic benefits owned or managed by The Defense Nuclear Facilities Safety Board (assets), amounts owed by The Defense Nuclear Facilities Safety Board (liabilities), and amounts, which comprise the difference (net position). The Statement of Net Cost reports the full cost of the Board's operations. The Statement of Budgetary Resources reports an agency's budgetary activity, while the Statement of Financing reconciles budgetary resources to the agency's net cost of operations.

Basis of Accounting

Transactions are recorded on the accrual accounting basis in accordance with OMB Circular A-136. Under the accrual basis of accounting, revenues are recognized when earned, and expenses are recognized when a liability is incurred, without regard to receipt or payment of cash. The preparation of financial statements requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates.

Revenues and Other Financing Sources

The Defense Nuclear Facilities Safety Board is an appropriated agency. Appropriated funds are received annually which remain available until expended (e.g., no year funds).

All permanent employees participate in the contributory Civil Service Retirement System (CSRS) or the Federal Employees Retirement System (FERS). FERS employees are covered under the Federal Insurance Contributions Act (FICA). To the extent that employees are covered by FICA, the taxes they pay to the program and the benefits they will eventually receive are not recognized by the Board's financial statements. The Board makes contributions to CSRS, FERS and FICA and matches certain employee contributions to the thrift savings component of FERS. All of these payments are recognized as operating expenses.

In addition, all permanent employees are eligible to participate in the contributory Federal Employees Health Benefits Program (FEHBP) and Federal Employees' Group Life Insurance Program (FEGLIP) and may continue to participate after retirement. DNFSB makes contributions through the Office of Personnel Management (OPM) to FEHBP and FEGLIP for active employees to pay for current benefits; these contributions are recognized as operating expenses. The Board does not report on its financial statements there programs' assets, accumulated plan benefits or unfunded liabilities, if any, applicable to its employees. Reporting such amounts is the responsibility of OPM; however, the financing of these costs by OPM and imputed to the Board are reported on the Statement of Changes in Net Position and the Statement of Financing.

The Board's estimate for these imputed costs in FY 2005 is $707,404; the Board did not calculate Imputed Financing Costs Absorbed by Others in FY 2004.

Note 2 – Fund Balance with Treasury

All of The Defense Nuclear Facilities Safety Board fund balance with Treasury is coming from appropriations. A worksheet adjustment was made for a credit of $26,937 for a payroll charge that was reflected in the Treasury cash balance, but was not in the GSA accounting system.

A. Fund Balance with Treasury	2005	2004
Appropriated Fund	$6,352,070	$5,949,812

B. Status of Fund Balance with Treasury		
1) Unobligated Balance		
(a) Available	1,017,450	41,489*
(b) Unavailable	372,271	21,071
2) Obligated Balance not yet Disbursed	4,962,349	4,987,252
Total	$6,352,070	$5,949,812

*rounding

Note 3 – Accounts Receivable

The line item represents the amount owed to the Board by former employees and is showing a debit balance. The direct write-off method is used for uncollectible receivables.

Accounts Receivable	2005	2004
Claims	$9,450	$12,403

Note 4 - General Property, Plant and Equipment, Net

As of September 30, 2005 the Defense Nuclear Facilities Safety Board shows Equipment – Administrative total cost of $737,603 and a net book value of $154,684. The Accumulated Depreciation to date shows a balance of $582,919. The depreciation calculation method used is Straight Line with a useful life of 5 years. A $5,000 threshold is used to determine whether items are capitalized.

2005	Equipment	Furniture & Fixtures	Software	Total
Cost	$623,120	$52,644	$61,839	$737,603
Accum. Depr.	(533,955)	(31,651)	(17,313)	(582,919)
Net book value	$ 89,165	$20,993	$44,526	$154,684

2004	Equipment	Furniture & Fixtures	Software	Total
Cost	$623,120	$52,644	$21,887	$697,651
Accum. Depr.	(489,036)	(24,017)	(7,650)	(520,703)
Net book value	$134,084	$28,627	$14,237	$176,948

Note 5 – Other Assets

This line item represents the Advances to Associates.

	2005	2004
1. Intragovernmental	0	0
2. With the Public – Associates	$11,100	$13,000
Total Other Assets	$11,100	$13,000

Note 6 – Liabilities Not Covered by Budgetary Resources

	2005	2004
Unfunded Leave	$830,320	$812,224
Workers' Compensation	$ 2,213	$ 1,192
Total liabilities not covered by budgetary resources	$832,533	$813,416

Note 7 – Intragovernmental Liabilities

Intragovernmental liabilities arise from transactions with other federal entities. All of the Board's FY2005 accounts payable intragovernmental liabilities are with the General Services Administration. Employee benefits are the amounts owed to OPM and Treasury as of September 30, 2005 for FEHBP, FEGLIP, FICA, FERS, and CSRS contributions.

Note 8 – Other Liabilities

Other liabilities with the public consist of Accrued Funded Payroll and Leave of $498,908 and Unfunded leave in the amount of $830,320.

	With the Public	Non-Current	Current	Total
2005	Other Liabilities	$830,320	$498,908	$1,329,228
2004	Other Liabilities	$812,224	$451,865	$1,264,089

The Board has not entered into any existing capital leases and thus has incurred no liability resulting from such leases. Its one operating lease is for headquarters office space from GSA. Lease costs for office space for FY 2005 and FY 2004 amounted to $1,937,709 and $1,979,859, respectively. The existing lease expires March 7, 2006; future estimated lease payments under this lease (e.g., for the period October 1, 2005 through March 7, 2006) are $857,031. A ten (10) year follow-on lease is pending; however lease payments under that lease have not been finalized.

Note 9 – Other Liabilities

Worker's compensation is DNFSB's estimated liability for claims incurred, but not reported as of September 30, 2005 and 2004, which is expected to be paid in future periods.

	2005	2004
Worker's compensation	$2,213	$1,192

Note 10 – Explanation of Differences Between the Statement of Budgetary Resources and the Budget of the United States Government

Budgetary resources made available to DNFSB include current appropriations, unobligated appropriations and recoveries of prior year obligations. For fiscal year 2004, differences exist between the total budgetary resources on the statements of Budgetary Resources and the budget authority amount in the fiscal year 2006 President's Budget. These differences are due to prior year recoveries that could not have been anticipated at the time the President's Budget was developed. In addition, as the FY2007 President's Budget is not yet available, comparison between the Statement of Budgetary Resources and the actual FY 2005 data in the President's Budget cannot be performed.

Note 11 – Explanation of the Relationship Between Liabilities Not Covered by Budgetary Resources on the Balance Sheet and the Change in Components Requiring or Generating Resources in Future Periods

Liabilities not covered by budgetary resources total $832,533 and the Change in components requiring or generating resources in future period shows $19,116. The $19,116 is the net increase of future funded expenses – leave between appropriations of annual fund 2004 and annual fund 2005. Accrued funded payroll liability is covered by budgetary resources and is included in the net cost of operations. Whereas, the unfunded leave liability includes the expense related to the decrease in annual leave liability for which the budgetary resources will be provided in a subsequent period.

	2005	2004*
Liabilities not covered by budgetary resources	$832,533	$813,416
Change in components requiring/generating resources	$19,116	$813,416

*1 Adjustment made to correct prior year entries to bring the Unexpended Appropriations into agreement with the SBR taking into account the Accounts Receivable and the Unfunded Leave SGL account balances.

APPENDIX A: Actual Performance Results for Prior Fiscal Years

The DNFSB revised its strategic plan in 2003 to refocus its efforts and better align its resources to meet the challenges of ensuring safety in the defense nuclear complex as the complex evolves during the latter half of this decade. Previous performance reports were established and executed to achieve the objectives of the earlier version of the DNFSB's strategic plan. The changes to the plan are evolutionary in nature and primarily result in increased DNFSB attention on ensuring safety in the area of nuclear facility design and infrastructure issues while maintaining vigilance in the areas of nuclear weapons and nuclear materials. The performance objectives from previous years were written to support objectives in only three areas. Rather than being a separate strategic area of concentration, safety oversight of the design and construction of new defense nuclear facilities were captured as part of a broad strategic area of concentration.

Detailed information demonstrating the DNFSB's performance relative to its Strategic Plan and its Annual Performance Plans for the fiscal years 2002-2004 is available in previous year Performance Reports published on the DNFSB's website at *www.dnfsb.gov*. The tables that follow provide abbreviated summaries and information concerning the DNFSB's actual performance in FY 2004, FY 2003, and FY 2002.

GOAL 1 — COMPLEX-WIDE HEALTH AND SAFETY ISSUES

Performance Goal 1	Nuclear Weapon Operations. DOE operations that directly support the nuclear stockpile and defense nuclear research are conducted in a manner that ensures adequate protection of health and safety of the workers and the public.

Examples of FY 2004 Accomplishments

Support of the Defense Nuclear Complex. As a result of concerns over the continued erosion of technical competence and a need to reemphasize the priority of work that directly supports nuclear safety, the Board issued Recommendation 2002-2, *Weapons Laboratory Support of the Defense Nuclear Complex.* In FY-04, DOE established at each national laboratory a single point of contact for each weapon system; DOE established at each site office a requirement to track and ensure closure of nuclear safety support requirements for weapon laboratories. These changes have enhanced the timely resolution of safety concerns in the nuclear weapon complex.

Safe Storage of "Pits." In response to the Board's Recommendation 99-1, *Safe Storage of Fissionable Material called "Pits,"* DOE continued to repackage pits into a robust container suitable for interim storage in FY 2004. DOE has repackaged its 10,000th pit. The associated container surveillance program has been rejuvenated and the entire surveillance backlog was worked off during FY 2004.

Improvements in Safety Bases at Pantex. The Implementation Plan for Board Recommendation 98-2 includes a commitment to improve the safety bases at the Pantex Plant. In FY 2004, Pantex completed and approved documented safety analysis for facility and site-wide operations. Pantex has begun implementing a number of new and enhanced controls to improve the safety of nuclear explosive operations.

Readiness to Dispose of a Damaged Nuclear Weapon. The Board has consistently highlighted to DOE, the need to develop the programs and infrastructure at NTS necessary to safely dispose of a damaged nuclear weapon or improvised nuclear device. In FY2004, DOE made substantial organizational and procedural improvements, and provided training, and developed a safety basis for G-tunnel. As a result, DOE has made substantial physical and procedural improvements and provided training to be prepared to safely dispose of a damaged nuclear weapon should the need arise.

Lightning Protection at LANL. The Board noted that the safety-class lightning protection system at LANL's Weapons Engineering and Tritium Facility (WETF) did not appear to provide adequate lightning protection for the facility. Subsequently, DOE has directed LANL to require that all hazard and accident analysis scenarios be re-evaluated. In addition, LANL is required to upgrade fire barriers and package material-at-risk in approved containers.

Deficiencies in Safety Basis of the Plutonium Facility at LLNL. The Board identified deficiencies in the safety basis for Building 332, the Plutonium Facility, at LLNL. In particular, the Board expressed concern regarding the downgrading of several safety-class systems as part of LLNL's new approach to hazard confinement during accident scenarios. In response, NNSA commissioned an independent calculation of the Leak Path Factor and committed to ensuring that system reclassification does not result in downgraded system performance.

Subcritical Experiments. The Board reviewed DOE's assessments and readiness for subcritical experiments, identifying inadequate nuclear safety management programs; inadequate mechanisms for verification of readiness of subcritical experiments and test readiness (should nuclear weapons testing be resumed); and inadequate commitment to improve the readiness review process for subcritical experiments and nuclear weapons testing. In FY 2004, NNSA's Nevada Site Office improved the safety basis documents, developed a USQ process, improved the

readiness review process, and committed to improve the implementation of controls and the conduct of readiness reviews. As a result, subcritical experiments have a documented safety analysis and there is some verification of readiness.

Lightning Protection at NTS. In 2003, the Board noted that lightning protection at NTS did not appear to provide adequate protection for the nuclear operations and personnel. In response, NTS initiated compensatory measures and a study of the lightning protection needs at NTS. In 2004, lightning protection controls were included in the safety basis of several nuclear facilities. As a result, NTS acknowledged the need to make safety improvements, implemented lightning protection controls, and continues to study lightning protection for NTS.

Hoisting and Rigging at NTS. The Board noted deficiencies in hoisting and rigging, maintenance, and practices for nuclear and nuclear explosive operations at NTS. As a result, DOE has reclassified the critical safety equipment (at G-tunnel) used for the handling of damaged nuclear weapons and improvised nuclear devices as safety-class, improved controls for handling unvented drums of transuranic waste, and improved maintenance of hoisting and lifting equipment. As a result, controls have improved the safety of nuclear and nuclear explosive operations.

Critical Experiments Facility at LANL. The Board raised concerns that the unmitigated consequences predicted for the worst nuclear accidents at TA-18 are significant, but NNSA and LANL are relying on the compliance of operators with a set of administrative controls and interim compensatory measures to prevent such accidents. LANL suspended operations at TA-18 after reviewing information provided by the Board and after an LANL review of a safety requirement violation at TA-18 identified weaknesses that reinforced concerns raised by the Board.

Improvements in Quality Assurance related to the Tooling Program at Pantex. In a June 18, 2004-letter, the Board expressed concern that there continue to be serious weaknesses in the program to design and fabricate tools for nuclear explosive operations at Pantex. Additionally, the Board noted that an effective quality assurance program is essential to the safe design, fabrication, procurement, inspection, and maintenance of special tooling. The Board has requested that NNSA conduct a comprehensive review of quality assurance as it affects the tooling program at the Pantex Plant. NNSA is developing plans to conduct a comprehensive, independent review of quality assurance at the Pantex Plant.

Hoisting and Rigging Operations. During FY2003 and FY2004, the Board's staff reviewed the hoisting and rigging programs at the Savannah River Site, the Pantex Plant, the Nevada Test Site, and Sandia National Laboratory. In letters dated July 10, 2003 and January 21, 2004, the Board expressed concerns regarding the maintenance of hoisting equipment, the safety classification of hoisting, vendor communication, and training for emergency scenarios. The Board also provided DOE substantive comments for the revision of DOE standard 1090, "Hoisting and Rigging." The safety of hoisting and rigging operations across the complex has improved, in particular the hoisting and rigging program at the Pantex Plant.

W78 Operations at Pantex. The Board has been urging DOE to improve the safety of weapons-related work at the Pantex Plant since it issued Recommendation 98-2, *Safety Management at the Pantex Plant*. Principle among the Board's recommendations was that DOE simplify and expedite its process for re-engineering nuclear explosive processes at Pantex such that the attendant safety improvements could be put in place sooner. In FY 2004, DOE completed the start-up of the Seamless Safety for the 21st Century (SS-21) W78 Disassembly & Inspection Program. The W78 Disassembly & Inspection program is now significantly safer and more efficient than it had been previously.

Safety of Dismantlement Operations. In a January 20, 2004 letter, the Board identified a number of deficiencies in various processes at the Pantex Plant that led to the attempted dismantlement of a damaged unit in a manner that was not intended, that was not adequately reviewed, and may not have incorporated adequate safety measures. As a

result of this incident, Pantex has made improvements in the training of production technicians, in the conduct of unreviewed safety question evaluations, in the performance of nuclear explosive safety evaluations, and in the requirements for involvement of process engineers in certain types of operations.

Y-12 Building 9212 B-1 Wing Fire Protection. The Board identified concerns to NNSA Headquarters regarding the adequacy of fire protection in the B-1 wing of Building 9212 at Y-12. Following a performance-based review, YSO recommended upgrades that include installation of sprinklers on the first floor, a new system shutdown interlock and relocation of certain equipment, and the installation of fire-protective coatings on portions of primary extraction column supports, as well as changes (e.g., new catch basin) to divert primary and secondary extraction combustible liquids to the first floor. Design and planning efforts for the modifications/upgrades have been started by BWXT. The full project is planned (and is to be funded) to be completed by late Fiscal Year 05. When completed, it will improve the degree of fire protection in the facility to a level appropriate for the remaining life of the facility.

Y-12 Oxide Conversion Facility. The Board identified concerns in a December 2003 letter regarding the startup of the Oxide Conversion Facility (formerly referred to as the Hydrogen-Fluoride facility). These concerns included missing weld radiographs, lack of proper designation of certain safety equipment, a credible criticality scenario not addressed, and worker safety concerns. NNSA re-radiographed significant welds, upgraded the functional classification of safety system equipment, added seismic reinforcement to address the criticality concern and addressed the worker safety concerns.

Y-12 Conduct of Operations. The Board raised concerns over the formality of operations at Y-12 and the adequacy with which management oversight was exercised. An overall improvement initiative was started by Y-12 that includes a management observation program to provide increased and documented on-the-floor observations of nuclear operations. Y-12 also instituted a "Conduct of Operations Representatives" program to provide ongoing, independent oversight and mentoring during nuclear operations. Six of these representatives have now been deployed.

Y-12 Independent Validation of Safety Basis Controls. The Board inquired on lack of a Y-12 process for independent validation of implementation of new or revised safety basis controls. Y-12 has instituted independent validation protocols for new/revised safety basis controls. Initial implementation validation reviews in certain Y-12 nuclear facilities showed the need for several enhancements to line management implementation efforts and personnel training. Corrective actions are ongoing.

Y-12 Activity Level Work Planning for Infrequent, Potentially Hazardous Operations. The Board identified planning weaknesses that led to inadequate definition of safety controls for infrequent, potentially hazardous operations. NNSA prompted a contractor assessment resulting in higher levels of review and approval for such evolutions. A successful trial application is being expanded for use by all major nuclear facilities at Y-12.

Y-12 Conduct of Engineering Improvements. After operations failures related to engineering changes at Y-12, the Board raised concerns regarding the adequacy of engineering analysis used to support the changes. Y-12 evaluated its engineering processes and took steps to strengthen requirements on proper design input and verification for engineering changes and to conduct improved training for Y-12 engineering personnel on these issues.

Examples of FY 2003 Accomplishments

W84 Disassembly and Inspection Operations. W84 disassembly and inspection operations have not been conducted at Pantex since 1998, and the authorization basis is no longer valid. The Board briefed National Nuclear

Security Administration (NNSA) management on several occasions regarding efforts to restart the W84 disassembly and inspection operations without an adequate authorization basis. The Board raised numerous potential safety issues, which resulted in NNSA conducting an internal study that ultimately validated the Board's concerns. W84 operations have been postponed until these issues can be adequately addressed.

Support of the Defense Nuclear Complex. As a result of concerns over the continued erosion of technical competence and a need to reemphasize the priority of work that directly supports nuclear safety, the Board issued Recommendation 2002-2, *Weapons Laboratory Support of the Defense Nuclear Complex.* DOE's Implementation Plan (IP) was negotiated over the next several months and was issued on June 30, 2003. DOE has taken preliminary steps to reemphasize the priority of nuclear weapons work. DOE is also establishing at each site an office that will track and ensure closure of nuclear safety support requirements for weapon laboratories.

Storage of "Pits." Continuing to respond to the Board's Recommendation 99-1, *Safe Storage of Fissionable Material called "Pits,"* in FY 2003, DOE repackaged its 7500th pit into a robust container suitable for interim storage. The associated container surveillance program has also been rejuvenated; almost all of the surveillance backlog will be eliminated by the end of FY 2003.

Criticality Safety at Y-12. The Board expressed its concern that line management at Y-12 was not placing sufficient emphasis on simplifying and standardizing all fissile material handling operations in order to build a criticality safety program structured to assure success. The confusing controls that exist in many current Y-12 facilities with many different forms of uranium, dozens of different containers, and different postings for storage arrays have resulted in a significant number of operator failures. The letter stated that the standardization should extend to requirements, postings, and containers. In response, NNSA has started to reduce the amount of stored nuclear materials and to standardize fissile material storage containers.

Nuclear Explosive Operations at Pantex. The Board has been urging DOE to improve the safety of weapons-related work at the Pantex Plant since it issued Recommendation 98-2, *Safety Management at the Pantex Plant.* Principle among the Board's recommendations was that DOE simplify and expedite its process for re-engineering nuclear explosive processes at Pantex such that the attendant safety improvements could be put in place earlier than planned. In FY 2003, DOE completed the start-up of the Seamless Safety for the 21st Century (SS-21) W62 Disassembly & Inspection Program. This program is now significantly safer and more robust than weapons programs to which the SS-21 process has not yet been fully applied. In FY 2003, the Pantex contractor took delivery of the prototype SS-21 tooling for W88 bay operations and W78 bay and cell operations.

Procedural Compliance at Pantex. In October 2001, the Board sent NNSA a letter expressing concern with the increasing number of procedural adherence issues observed at Pantex. Although an action was initiated to address this problem, in March 2002, the Board wrote NNSA, noting that further improvements were still warranted. During FY 2003, observations indicate that a significant improvement has been achieved.

Building 12-64 Seismic Analysis at Pantex. In 1998, the Board wrote to DOE expressing concern with the seismic response of Building 12-64. In 2002, NNSA informed the Board of its intention to upgrade Building 12-64 in preparation for resuming nuclear explosive operations there. Subsequent meetings and discussions in FY 2002 and 2003 between NNSA personnel and the Board's staff have identified concerns with analyses that had been completed to address the Board's original concerns. Although NNSA's conceptual design for upgrading Building 12-64 addresses the concern for the seismic response of the facility, specific details regarding corrective actions are lacking. Efforts to improve the analyses and identify potential engineering solutions continue.

Pantex Fire Protection. In FY 2003, DOE completed modification of the fire detection and suppression system in Building 12-44 and completed its Readiness Assessment Report for Fire Protection at the Pantex Plant. DOE has

taken beneficial occupancy of the 12-44 facilities. DOE experienced numerous delays within their readiness activities for fire protection and completion of the fire protection final report. Under the impetus of continual Board urging, DOE ultimately completed the Readiness Assessment Report for Fire Protection, and delivered it to the Board as Commitment 4.3.2 to Recommendation 98-2.

Improvements in Safety Bases for the Pantex Plant. Fulfilling commitments made in response to Recommendation 98-2, DOE completed the Transportation Safety Analysis Report, Phase 1, Group 1, Readiness Assessment; the Readiness Assessment Report for Fire Protection; and approved the Transportation Safety Analysis Report (SAR) and Technical Safety Requirements (TSRs), as well as Pantex Zone 12 & Zone 4 Staging Facilities SAR and TSRs. Although these accomplishments provide improvements in the safety bases for the Pantex Plant, final implementation of these onsite transportation controls remains to be completed. The Board continues to urge DOE to expedite the implementation of onsite transportation controls.

NTS Readiness to Dispose of a Damaged Nuclear Weapon. The Board has consistently highlighted to DOE the need to develop the programs and infrastructure at NTS necessary to safely dispose of a damaged nuclear weapon or improvised nuclear device. In FY 2003, DOE responded by improving its capabilities to conduct these activities safely, including making further physical improvements to and maintaining G-tunnel, conducting training on specific hazards and controls and disposition capabilities, beginning the development of a safety basis for G-tunnel, and beginning to improve NTS conduct of operations. As a result, DOE has made substantial physical and procedural improvements and provided training to be prepared to safely dispose of a damaged nuclear weapon (should such a need arise).

Emergency Power System at the LLNL Plutonium Facility. In April 2002, the Board identified deficiencies in LLNL's emergency electrical power system, which did not meet safety-class standards and IEEE codes. As a result of the Board's efforts, LLNL developed an action plan to correct the deficiencies. As of August 2003, LLNL has completed most of the commitments related to this action plan, including system upgrades and updating important system drawings and calculations. The remaining commitments will ensure that the system will be assessed against appropriate electrical standards, and that backfits involving further upgrades will be considered, if necessary.

Lightning Protection at LANL. The Board noted that the safety-class lightning protection system at LANL's Weapons Engineering and Tritium Facility (WETF) did not appear to provide adequate lightning protection for the facility. In addition, the Board submitted a report presenting additional deficiencies with the lightning protection systems at various facilities at LANL. In March 2003, a subject matter expert study of the WETF lightning protection system concluded that the existing system could not perform its safety-class function. To adequately protect this operating nuclear facility against lightning hazards, a defensible lightning protection scheme must now be developed and implemented at WETF.

Deficiencies in LLNL Safety Bases. The Board identified significant deficiencies in the current safety bases for some of LLNL's defense nuclear facilities, most notably the Plutonium Facility, Building 332. A lack of vigorous DOE oversight has allowed these deficiencies to exist for years. In a letter dated April 10, 2003, the Board established a 60-day reporting requirement for DOE to ensure that these identified weaknesses are adequately addressed in a timely manner or establish appropriate compensatory measures until the deficiencies can be adequately addressed.

Subcritical Experiments. The Board reviewed DOE's assessments and readiness for subcritical experiments, identifying inadequate nuclear safety management programs; inadequate mechanisms for verification of readiness of subcritical experiments and test readiness (should nuclear weapons testing be resumed); and inadequate commitment to improve the readiness review process for subcritical experiments and nuclear weapons testing. In FY 2003, NNSA's Nevada Site Office committed to improve the safety basis documents, develop a USQ process, and improve

the readiness review process. As a result, subcritical experiment program requirements are being revised, safety basis documents are being improved, and a USQ process is being developed.

Examples of FY 2002 Accomplishments

Maintenance Improvement Program at Y-12. In 2001, Y-12 responded to Board concerns about overdue and deferred maintenance of safety systems by implementing a maintenance improvement program. In 2002, the Board found that the program did not incorporate certain fundamental requirements, such as integrated scheduling of maintenance and comprehensive tracking of material history and equipment failures. Y-12 has now instituted systematic, scheduled outages at nuclear facilities, while prioritizing and reducing the maintenance backlog.

Material Storage Facilities at Y-12. The Board has highlighted the accumulation of unneeded nuclear materials stored in unsatisfactory configurations at Y-12. During 2002, Y-12 stabilized or disposed of many of the materials, particularly non-Material Access Area legacy items and the uranium inventory in Building 9206.

Chemical Safety at Y-12. Problems with the management of chemicals at Y-12 have been highlighted in extensive correspondence from the Board. In 2002, as a result of the Board's interactions, Y-12 made improvements in the chemical safety program. The site has issued a *Chemical Safety Management Program*, Operational Safety Boards continue to improve, Hazard Surveys are on track for completion, Authorization Basis documents for Chemically Hazardous Facilities have been issued, and the Hazardous Material Inventory System has been upgraded.

Recommendation 99-1. Continuing to respond to Board Recommendation 99-1, *Safe Storage of Fissionable Material called "Pits,"* DOE repackaged its 5000th pit into a robust container suitable for interim storage in July 2002. The associated container surveillance program has also been rejuvenated, with more than half of the surveillance backlog worked off in FY 2002.

Fire Protection at Pantex. In early 2002, LLNL conducted a baseline needs assessment of the Pantex Fire Department, identifying numerous significant safety-related deficiencies. However, the Pantex Plant contractor exhibited reluctance to act on these findings. The Board intervened to emphasize the need for NNSA and its contractor to act promptly to address the deficiencies. As a result, the contractor has placed more emphasis on this issue, and a corrective action plan is being implemented to improve Fire Department readiness.

Deactivation LLNL Heavy Element Facility. The Board reviewed LLNL's plans for deactivation of the Heavy Element Facility, including the removal of nearly 300 radioactive items, some of which pose significant radiological risk. Planning for the project was being approached piecemeal, rather than in a systematic and integrated manner. In March, 2002, the Board informed DOE that comprehensive planning methods, such as those contained in DOE Order 430.1A, *Life Cycle Asset Management*, should be used to better identify hazards and necessary controls, improve sequencing of tasks, and identify repetitive tasks that could be standardized. LLNL is currently working to address this issue.

Readiness to Dispose of a Damaged Nuclear Weapon at NTS. The Board has consistently highlighted to DOE the need to develop the programs and infrastructure at NTS to safely dispose of a damaged nuclear weapon or improvised nuclear device. In FY 2002, DOE responded by upgrading its capabilities to conduct these activities safely, including making further physical improvements to G-tunnel, preparing to develop a safety basis for G-tunnel, and conducting a number of exercises to identify policy, personnel, and procedure requirements and provide training. As a result, DOE has made substantial physical and procedural improvements and provided training to ensure that it will be prepared to safely dispose of a damaged nuclear weapon should the need arise.

GOAL 2: NUCLEAR MATERIAL PROCESSING AND STABILIZATION

Performance Goal 2	Nuclear Material Processing and Stabilization. The processing, stabilization, and disposition of DOE defense nuclear materials are performed in a manner that ensures adequate protection of health and safety of the workers and the public.

Examples of FY 2004 Accomplishments

Nuclear Material Stabilization and Storage at LANL. As part of the implementation of the Board's Recommendations 94-1 and 2000-1, the Board has continued to evaluate NNSA's plans for repackaging high-risk materials at LANL into robust containers, and to urge NNSA to pursue alternative approaches that could accelerate this work. As a result, LANL and NNSA have developed a comprehensive nuclear materials packaging and storage plan that will result in a substantial reduction in risk by accelerating the schedule for stabilization, packaging, and improved storage of nuclear materials.

Inactive Actinide Materials. The Board evaluated NNSA plans for managing non-programmatic actinide materials stored at LANL, LLNL, SNL, the Pantex Plant, and Y-12. The Board found that NNSA has begun to define and execute adequately its strategy to characterize materials for storage or disposition, to identify which materials fall under this effort, and to analyze and upgrade, where appropriate, material packaging and storage facility conditions. The Board continues to evaluate the approaches taken by each NNSA site, as well as NNSA's programmatic direction.

Surveillance and Monitoring Program for Plutonium Storage. DOE-STD-3013, *Stabilization, Packaging, and Storage of Plutonium-Bearing Materials*, which establishes requirements governing the long-term storage of plutonium metal and oxides, requires a surveillance and monitoring program to verify safe storage parameters. The Surveillance and Monitoring Program managed by the DOE Savannah River Operations Office was established for this purpose, but despite assurances provided last year, DOE again under funded the LANL portion of this effort, thereby jeopardizing verification of safe storage parameters as required by the standard. At the urging of the Board, the Assistant Secretary for Environmental Management restored the funding for this program for fiscal year 2004. The Board also reviewed the scientific and statistical methodology for surveillance of plutonium in storage and provided input that corrected overly optimistic assumptions regarding the validity of extrapolations.

Hanford Tank Farms Fill Height. The Board questioned the safety of DOE's plan to fill certain high-level waste tanks beyond the height which was tested for leaks during construction. In response to these questions, DOE limited the proposal to only those tanks which had been leak tested to the proposed fill height.

Safety Basis for Hanford Tank Farms. The Board identified that the revised Technical Safety Requirements for flammable gas and waste transfers had eliminated key safety controls and that the site's independent validation of the implementation of the Documented Safety Analysis was inadequate. Continued questions by the Board led to the further discovery that the contractor had inadvertently put a tank at risk of retaining and releasing significant quantities of flammable gas. As a result, DOE rewrote the Technical Safety Requirements to reinstate controls such as Process Control Plans, convened a second independent review to ensure all safety controls had been implemented, and increased the frequency of key tank waste measurements to better ensure that the safety of current waste conditions was understood.

Salt Waste Processing Facility at SRS. The Board evaluated the safety risks associated with delays in the design and construction of the Salt Waste Processing Facility and urged DOE not to eliminate funding for this important work. DOE has since restored funding for this project and is currently pursuing a program plan that will accelerate waste stabilization and risk reduction. The Board reviewed the Critical Decision (CD)-1 facility design documentation and identified weaknesses in the performance categorization and potential seismic interactions of various portions of the facility. DOE plans to perform further analysis and upgrades to the facility's structural components to address the Board's concerns.

Mercury Hazards at the SRS High-Level Waste System. In 2002, the site identified the potential for workers to be exposed to mercury vapors and compounds in the high level waste tank farms. Since the initial discovery, the Board has had held discussions with DOE and the contractor regarding actions to protect site workers and verified the adequacy of the engineered and administrative controls implemented to protect workers from mercury exposure.

Hanford High-Level Waste Tank Integrity. The Board reviewed the tank inspection program at Hanford and proposals to relax requirements for corrosion inhibitors in the tank waste. The Board provided input during meetings of a Corrosion Expert Panel held at Hanford to evaluate the proposed changes. The panel recommended maintaining the existing corrosion inhibitor controls until a solid technical basis can be developed.

Hanford Spent Nuclear Fuel Project. The Board's review of ongoing spent nuclear fuel project operations at Hanford identified that changing conditions were not being appropriately reviewed by the contractor for safety implications. Reevaluation of these activities led to multiple positive unreviewed safety questions and the implementation of new controls to provide adequate safety for fuel removal operations.

Hanford Sludge Retrieval and Disposition Project. The Board continued to provide close oversight of the contractor's efforts to start the retrieval of sludge from the K-East Basin at Hanford. The Board urged DOE to require a formal Operational Readiness Review (ORR) for sludge retrieval and to identify new milestones for completing sludge retrieval. DOE and its contractor both completed ORRs that were rigorous and the contractor began limited sludge retrieval. Additionally, DOE committed to new milestones for sludge retrieval and treatment.

Melton Valley Transuranic/Alpha Low-Level Waste Treatment Facility. Prior to startup of this new facility, the Board pointed out deficiencies in the conduct of operations for radiological work. In response, the contractor upgraded the safety of non-routine radiological work by requiring verbatim compliance with procedures.

Safety Basis for Mobile Transuranic Waste Characterization Units. The Board reviewed the DOE-authored Basis for Interim Operation for the operation of mobile transuranic waste characterization units. The Board discovered inadequacies concerning quantities of material at risk, analysis of deflagrations, and in the controls specified in the Technical Safety Requirements. Following several discussions and a Board letter, DOE agreed to add several new controls including a formal container inspection program and lid restraints for unvented drums, and will require an Operational Readiness Review for new deployments to ensure sites receiving the units are ready to operate them safely.

Retrieval of Transuranic Waste Drums at Hanford. The Board reviewed DOE plans to retrieve transuranic waste drums from soil-covered trenches and noted a lack of adequate controls to protect the workers. In response to a letter from the Board, DOE and its contractor implemented more robust controls for handling unvented drums and began planning for the safe retrieval and handling of high-source term drums containing plutonium-238.

Rocky Flats Environmental Technology Site Building 371 Fire. The Board completed its evaluation of the significant fire that occurred on May 6, 2003, during decommissioning of a glovebox. In a letter of December 2, 2003, the Board identified broad weaknesses in the planning and execution of decommissioning work at RFETS, as

well as the site's failure to properly investigate the fire or address the problems which led to the fire. In response, DOE and the contractor conducted extensive reviews and implemented corrective actions such as restricting the use of generic work packages to only simple tasks, instituting more comprehensive review of work packages, improving chemical decontamination and combustible control procedures with associated improvements in conduct of operations, retraining workers on the proper response to fires, and improving daily pre-evolution briefings to better communicate hazards and controls to the workers. Lessons learned have been shared with other DOE sites performing decommissioning work.

Fernald Silo 3 Waste Disposition Project. The Board reviewed the safety analysis for the Silo 3 waste disposition project and raised questions regrading the proper classification of the project, the new form of safety documentation (a nuclear health and safety plan), and various assumptions used in the safety analysis. The contractor subsequently made changes in the safety documentation to improve worker safety. The Board also provided comments on ways to improve the readiness review plans for the startup of the Silo 3 project that were accepted by the contractor and DOE.

Decommissioning at SRS. The Board evaluated the safety of decommissioning activities at SRS and expressed concern to DOE regarding several potentially serious events, including a release of tritium from contaminated piping, exposure of workers to an unshielded cesium-137 source, falling pipes and duct work, cutting into active electric lines, a grass fire, and several other events. Although the contractor implemented corrective actions after each event, the Board is evaluating the broader issues regarding the adequacy of training, procedures, and supervision for decommissioning work at SRS.

Sodium Fluoride Traps at ORNL. In a September 2002 Board letter regarding storage of sodium fluoride traps containing uranium-233 hexafluoride in Building 3019, the Board noted the safety issues due to increasing pressure in the traps from radiolytic gas production. ORNL now has completed the depressurization of all sodium fluoride traps susceptible to high pressures.

Examples of FY 2003 Accomplishments

Inactive Actinide Materials. The Board evaluated the National Nuclear Security Administration's (NNSA) plans for improving the management of non-programmatic actinide materials stored at sites such as Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), and the Y-12 National Security Complex (Y-12). The Board found that NNSA did not define and execute adequately its strategy to characterize materials for storage or disposition, to identify which materials fall under this effort, and to analyze and upgrade, where appropriate, material packaging and storage facility conditions. The Board continues to evaluate the approaches taken by each NNSA site, as well as the programmatic direction provided by NNSA Headquarters.

Depleted Uranium at Savannah River Site (SRS). The Board continued to pursue the disposition of depleted uranium stored in inadequate containers and facilities at SRS. During FY 2003, the disposal of the most vulnerable materials began safely with the first shipments of such items to an offsite low-level waste disposal facility.

High-Level Waste Tank Integrity. During FY 2003, as the culmination of an effort that began with the Board's Recommendation 2001-1 in 2001, the Board obtained a commitment from DOE to accomplish ultrasonic inspections of all double-shell high-level waste tanks at SRS by 2006. This plan represents a significant increase in scope and a significant acceleration compared with the proposed inspection program.

Documented Safety Analysis for the SRS High-Level Waste System. The Board's review of the new documented safety analysis for the high-level waste facilities at SRS found that it did not provide a bounding unmitigated

accident analysis as required by DOE directives. This problem resulted from the use of non-bounding input values and assumptions regarding operator actions to detect and terminate accidents. In response to a Board letter on this subject, DOE required the contractor to perform additional analyses and to implement specific administrative controls to protect assumptions made in the documented safety analysis.

Advanced Mixed-Waste Treatment Project. The Board identified significant shortfalls in the quality of the activity-level hazards analysis performed to support the identification of effective controls to protect workers involved in waste retrieval in the Advanced Mixed-Waste Treatment Project at the Idaho National Engineering and Environmental Laboratory (INEEL). In response, DOE required the contractor to implement conservative protective measures and to improve its analysis of the hazards associated with this work.

Hanford Spent Nuclear Fuel Project. The Board evaluated readiness preparations for startup of the K-Basins Fuel Transfer System and determined that the contractor had not corrected persistent problems regarding the premature declaration of readiness to operate. DOE identified a series of corrective actions that proved to be inadequate, as demonstrated by the failed attempt to start up the K-East Basin Sludge Water System later in the fiscal year. The Board is continuing to provide input and oversight as DOE works to solve this problem.

Laboratory Support for Long-Term Plutonium Storage. The Board identified that DOE was not planning to provide adequate resources for surveillance, laboratory testing, and shelf-life studies, which provide essential technical support for the safe long-term storage of plutonium. In response, DOE committed to provide adequate resources to continue the required activities and to develop a program plan that would identify how these activities would be carried out in future years.

Sodium Fluoride Traps at Oak Ridge National Laboratory (ORNL). DOE has begun to take actions in response to a letter issued by the Board in late FY 2002 regarding the safe storage of sodium fluoride traps containing uranium-233. These vessels store uranium-233 recovered from the Molten Salt Reactor Experiment, and are becoming pressurized from radiolytic gas production. ORNL has completed the depressurization of several traps in the interim, and is evaluating the results to determine the path forward for the remaining traps.

Fernald Closure Project. A review by the Board indicated significant progress is being made toward cleaning up and remediating the Fernald Site. However, there has been an increase worker injuries and near misses. The site attributed this rise in the accident rate to an increase in the number of new workers and the greater amount of work being performed on the site. The Board informed DOE that additional training to identify clearly the safety responsibilities and activities of all levels of management, the development of performance-based safety incentives for the contractor, and a more thorough screening of the qualification of new workers ought to be considered.

Rocky Flats Environmental Technology Site (RFETS) Vandalism. In May 2003, the Board learned that 14 high-efficiency particulate air filters installed in the Building 771 ventilation exhaust system had been vandalized by decommissioning workers and had to be replaced. The Board's evaluation of this event found that the report filed by RFETS in the DOE Occurrence Reporting and Processing System was inaccurate and did not acknowledge that the filter deficiencies were the result of deliberate vandalism. The Board further determined that neither the manager of the DOE Rocky Flats Field Office nor appropriate personnel within DOE Headquarters were aware of the vandalism. A corrected occurrence report was issued after the Board notified DOE Headquarters of the situation. The Board discussed this matter directly with the senior management of the RFETS contractor and the DOE field office manager to ensure they understood the seriousness of the workers' actions and the inaccurate reporting of this incident.

RFETS Building 371 Fire. The Board evaluated a significant fire that occurred on May 6, 2003, during glovebox removal activities in Building 371 at RFETS. The Board's review confirmed DOE's findings that inadequate work planning was a key contributor to the fire and that the workers' response to the fire could have resulted in serious harm to the workers, but found that the site's investigation into the cause of the fire was not adequate. The Board issued correspondence requesting DOE to document measures that had been taken to ensure that ongoing glovebox removal operations were safe and to ensure that materials recovered from the scene of the fire were adequately analyzed to support determining the cause of the fire. The Board further determined that there were fundamental weaknesses in procedure compliance by decommissioning workers and in DOE oversight, including the failure to provide DOE Facility Representatives to cover decommissioning activities in Building 371. These problems were identified to DOE, and corrective actions continue.

Activity Level ISM of Hanford Decommissioning Work. The Board continued to review planning and implementation of work being done at Hanford. The Board found that the work control procedures and practices need improvement to meet the intent of Integrated Safety Management and the DOE Orders and Guides for worker protection. The approach to hazard analysis does not use techniques such as those described by the American Institute of Chemical Engineers Guidelines for Hazard Evaluation Procedures, or the U.S. Department of Labor, Occupational Safety and Health (OSHA) publication, OSHA 3071, Job Hazard Analysis. These deficiencies are such that it is not clear that the controls are adequate to protect personnel performing decommissioning work at Hanford. Areas in need of improvement have been communicated directly to DOE. Some improvements are being implemented and have proven to be effective, however further effort is necessary.

Mound Closure Project. The Board reviewed decommissioning activities at Mound following the implementation of a new accelerated closure contract. DOE plans to reduce and relocate the DOE site office staff, while accelerating cleanup of the site. The Board informed DOE that the impacts on DOE's ability to provide adequate safety oversight of closure activities needed to be addressed.

Lawrence Livermore National Laboratory. The Board reviewed preparations for deactivation of Building 251 at the Lawrence Livermore National Laboratory and observed a readiness assessment for removal of heavy elements from the underground storage vaults. Weaknesses in conduct of operations and the use of procedures were identified to the laboratory. Corrective actions are in progress.

Examples of FY 2002 Accomplishments

Stabilization and Storage of Legacy Materials. In Recommendations 94-1 and 2000-1, the Board urged DOE to address legacy nuclear materials remaining following the shutdown of many defense nuclear facilities, recognizing that unstable materials and undesirable storage conditions would worsen with age. In November 2001, the Board provided further suggestions regarding the strategy and schedule for stabilization activities at SRS and LANL. In July 2002, DOE provided an acceptable plan for SRS. However, DOE still has not developed an adequate plan for the materials at LANL, and in August 2002, the Board reiterated the need to expedite stabilization activities there and suggested means by which this could be achieved.

Plutonium Stabilization. DOE completed several significant milestones in implementation of Board Recommendation 94-1. Rocky Flats Environmental Technology Site completed repackaging more than 100 tons of plutonium-bearing residues and about one half of its plutonium metal and oxide. Hanford completed packaging its plutonium metal and stabilized all of its plutonium solutions.

Uranium-233 Stabilization. In response to Board Recommendation 97-1, DOE commenced its ^{233}U inspection program at Oak Ridge National Laboratory. This program will characterize the hazards of materials stored for more

than 20 years with little surveillance. So far, most packages inspected have been found to be in good condition, except for a package containing an uncommon form of ^{233}U. The inner can of this package was severely corroded.

Hanford Spent Nuclear Fuel Project. During FY 2002, substantial progress was made in implementation of Recommendation 94-1 to stabilize spent nuclear fuel from the Hanford K-Basins. Removal, treatment, and packaging of fuel from K-West Basin continued throughout the year, although recurring equipment problems hampered initial progress. The Board's review of DOE's maintenance management program led to improved equipment availability and an increase in the fuel removal rate. The risk from continued storage of the degrading fuel and sludge in the K-East Basin will be mitigated when this system becomes operational in early FY 2003.

Hanford High-Level Waste System. Following a leak from the primary to secondary hose in a high-level waste transfer line, the Board discussed with Hanford personnel the need to revise qualification tests for transfer lines, inspect the hose assembly to identify the failure mechanism, and address component aging issues. The Board again met with Hanford senior managers after it became apparent that similar waste transfers were being planned and that needed inspections had not been performed. Subsequently, DOE directed the contractor to perform the necessary evaluations and provide written justification prior to conducting waste transfers through such transfer lines.

Savannah River Confinement System Integrity: In June 2002, the Board determined that DOE was not taking appropriate actions to correct a known deficiency with the H-Canyon confinement ventilation system. An interface with a non-seismically sound system renders the facility vulnerable to an unfiltered ground-level release of contamination during canyon accidents, especially a seismic event. The Board notified DOE of this vulnerability and requested timely corrective actions.

Savannah River Depleted Uranium Storage. In March 2002, the Board identified the need for DOE to address large quantities of depleted uranium materials stored in deteriorating containers and facilities at Savannah River. As a result, senior DOE management has initiated actions to disposition the material.

Y-12 National Security Complex. As a result of continuing efforts by the Board, the safety posture of Building 9206 has been improved. Stabilization of pyrophoric materials in Building 9206 was completed during FY 2002. Other highly reactive material has been processed and shipped out of the facility. Progress was also made in reducing the building's inventory of containerized highly-enriched uranium solids.

Lawrence Livermore National Laboratory. In March 2002, the Board issued a letter to DOE highlighting the need to strengthen program planning and work integration for the deactivation of the LLNL Heavy Element Facility, Building 251. Subsequently, the laboratory began to implement the applicable DOE requirements. A project management plan that is now being developed has resulted in a better understanding of the complexity of the proposed work.

Rocky Flats Deactivation and Decommissioning (D&D) Activities. In a March 2002 letter to DOE, the Board identified that improvements in activity-level work planning were needed to ensure that the often unique tasks associated with D&D work at Rocky Flats could be conducted safely. The Board also highlighted the need for improved DOE oversight of the contractor's work planning, and for improved feedback and improvement processes to ensure that the underlying causes of problems in the planning and execution of D&D work are identified and corrected. DOE is taking comprehensive actions to address these issues.

An increasing amount of decommissioning work at Rocky Flats is planned to be performed by subcontractors and other personnel not directly assigned to the major D&D projects. The Board observed that actions planned by DOE and its contractor to address past problems with this approach did not clearly address the flow-down of safety requirements and processes for work planning and work control, or the need for stronger on-the-floor oversight. In

response, DOE has identified actions to address these weaknesses and ensure that D&D work performed by subcontractors and other outside organizations is planned adequately, controlled properly, and conducted safely.

The Board observed that the D&D projects in Rocky Flats Building 707 and Building 776/777 had experienced many punctures of glovebox gloves. Onsite evaluations by the Board also noted that D&D personnel were not consistently using cut-resistant gloves while handling sharp objects during D&D activities. Board discussions with Rocky Flats management personnel led to an increased emphasis on the use of cut-resistant gloves for D&D work, which is expected to help reduce worker injuries and contamination.

Hanford D&D Activities. The Board identified a concern regarding the potential for worker injuries due to the use of canvas gloves to remove stuck and damaged blades from a large portable band saw used in D&D work in a nuclear facility at Hanford. Hanford management agreed with the concern, and has directed workers perform such activities using tools rather than their hands.

Miamisburg Environmental Management Project (MEMP). During a review of the MEMP work control program, the Board identified discrepancies between the integrated work control and maintenance control procedures, and a need for improved linkage between the two documents. The contractor took corrective actions to improve the work flow and the safety of maintenance activities.

GOAL 3 — NUCLEAR FACILITIES DESIGN AND INFRASTRUCTURE

Performance Goal 3	**Nuclear Facilities Design and Infrastructure.** New DOE defense nuclear facilities, and modifications to existing facilities, are designed and constructed in a manner that ensures adequate protection of health and safety of the workers and the public.

Examples of FY 2004 Accomplishments

Plutonium Storage at SRS. In Public Law 107-314, Section 3183, *Study of Facilities for Storage of Plutonium and Plutonium Materials at Savannah River Site*, Congress tasked the Board to conduct a study of the adequacy of K-Area Materials Storage facility (KAMS) and related support facilities such as Building 235-F (235-F), at the Savannah River Site (SRS) in South Carolina. In FY 2004, the Board issued its initial report as well as a follow up report to Congress. The Board proposed nine actions it considered necessary to enhance safety, reliability, and functionality of the plutonium storage facilities at SRS. DOE has agreed with the proposals and is currently evaluating implementation of appropriate actions during the next year.

Hanford Waste Treatment Plant Design and Construction. The Board has continued its extensive review of the design and construction of important to safety structures, systems and components in the Waste Treatment Plant facilities. Numerous deficiencies and concerns have been identified during these reviews, for example:

The contractor had planned to eliminate much of the fire-resistive coatings on the structural steel used in the facilities. Eliminating the coatings is inconsistent with DOE's own requirements as well as industry standards. This decision is now being reversed.

The cesium ion exchange system could accumulate explosive concentrations of hydrogen gas. Furthermore, the hydrogen generation rates, hydrogen gas retention and release in waste tanks, and the ability of the mixing systems to prevent gas accumulation in the stored high-level waste tanks was not understood. DOE has now added an inerting system to the cesium ion exchange system to manage hydrogen flammability.

One of the facilities in the WTP contains areas that by design will not be accessible after construction. The Board was concerned that the design of equipment in these areas were not sufficiently robust to operate normally for 40 years without maintenance. The Board encouraged DOE to further evaluate the performance criteria and validate that this equipment could in fact be expected to perform for this extended period of time. DOE conducted the study and is now correcting noted deficiencies and is also considering providing limit access to the areas for maintenance.

In response to Board concerns with the large number of weld defects and missing leak tests for a high-level waste vessel, DOE performed root cause analyses which identified significant weaknesses in vessel technical specifications, fabrication oversight, and engineers' understanding of safety requirements. DOE is now implementing corrective actions for these weaknesses.

DOE proposed delegating their approval of safety-related expectations (codes, major design changes, and safety control modifications) to the contractor. As a result of the Board's objections, DOE significantly modified their process and maintained their control of the standards and design of the Waste Treatment Plant.

The criteria proposed by the contractor to be used to accept a new, experimental concrete mixture was inadequate. As a result, additional acceptance criteria were developed to ensure the concrete's quality would be suitable.

High Enriched Uranium Materials Facility at Y-12 National Security Complex. The Board has continued its design reviews of the High Enriched Uranium Materials Facility (HEUMF). Based on detailed reviews, the Board identified concerns with important safety systems such as the structure, electrical, ventilation, and instrument and control (I&C) systems. Based on these Board concerns, the contractor has made the electrical design more reliable, added concrete details to the structure to better resist an earthquake, and is actively working to resolve additional safety concerns raised by the Board.

Pit Disassembly and Conversion Facility. The Board has been reviewing the structural design for the Pit Disassembly and Conversion Facility (PDCF) to be located at the Savannah River Site. The Board has ensured the structural design criteria were adequate, the geotechnical evaluations were appropriate, and the soil-structure interaction (SSI) analysis was adequate for the PDCF structures. In response to a Board letter dated May 13, 2003, the contractor conducted a fire risk analysis to assess a seismically induced full-facility fire. The Board is reviewing the final design to ensure that it is adequate and incorporates appropriate defense-in-depth.

Pantex Building 12-64 Upgrade. In a letter dated October 10, 2003, the Board noted that DOE was not addressing the structural weaknesses of the bays in Building 12-64 during conceptual design of upgrades. The Board emphasized the need to improve the structure's ability to withstand a potential earthquake and to establish a limit on explosive loading that appropriately accounts for known design deficiencies in the facility structure. As a result, the project was modified to include a structural repair to the building that should significantly reduce the likelihood of facility failure during an earthquake. In addition, the project has worked toward establishing an appropriate explosives limit to preclude impacting nearby facilities should there be an explosion.

High Efficiency Particulate Air Filter Testing at the Savannah River Site. High Efficiency Particulate Air (HEPA) filters provide an important confinement safety function in many DOE nuclear facilities. The Secretary of Energy committed to the Board to maintain the Filter Test Facility (FTF) in Oak Ridge, Tennessee and to independently test important-to-safety HEPA filters to ensure they will perform as expected. In July 2003, the Board noted that the Savannah River Site (SRS) had been installing HEPA filters in safety class and safety significant applications in nuclear facilities without testing the filters at the FTF. In response to the Board SRS replaced the vast majority of the incorrectly installed filters, and will replace the remaining few filters in the near future.

Nuclear Air Cleaning Handbook. The Board has urged DOE to issue an update to the *Nuclear Air Cleaning Handbook*, DOE-HDBK-1169, which forms the technical basis for the ventilation systems in most DOE nuclear facilities. The previous version was published in 1976. After much involvement by the Board, DOE issued an update to this important handbook in December 2003. The Board will continue to ensure that the handbook is appropriately implemented.

Salt Waste Processing Facility at the Savannah River Site. The Salt Waste Processing Facility will be used to remove cesium, strontium and actinides from high-level waste before it is vitrified. In a June 18, 2004 letter the Board outlined safety risks associated with delays to the salt processing program and urged DOE not to eliminate funding for this important work. DOE has restored funding and is now pursuing a sound program plan that will accelerate waste stabilization and risk reduction.

Hanford Plutonium Finishing Plant. Previously the Board identified electrical deficiencies at the Plutonium Finishing Plant. Specifically, baseline short circuit calculations, which are used to confirm the adequacy of installed electrical equipment, were not consistent with the electrical configuration drawings. During this fiscal year, the contractor evaluated this situation and in June 2004 concluded that many of the electrical system protective devices in the facility have been applied above their rated capability resulting in an unsafe condition and a violation of the National Electrical Code. Actions to correct this situation are underway.

Electrical Safety Handbook. In a letter to DOE dated August 7, 2003, the Board identified weaknesses with the proposed revision to the Electrical Safety Handbook, DOE-HDBK-1092-98. The Board requested that DOE provide effective, detailed guidance to contractors on electrical safety programs. In July 2004, DOE revised the handbook to include the details of electrical safety and a guidance for effective electrical safety program. This version is under review.

Examples of FY 2003 Accomplishments

Hanford Waste Treatment Plant. The Board continued to review the design and construction activities related to the Hanford Site's Waste Treatment Plant. Reviews of concrete quality, structural adequacy, site geotechnical, process safety, electrical system design, and adequacy of standards were conducted. The Board issued letters on November 4, 2002, addressing safety and design basis concerns; January 21, 2003, addressing Hanford ground motion issues; March 7, 2003, addressing electrical concerns; and on May 29, 2003, addressing authorization basis and standards issues. Resolution of the issues raised by the Board is taking place as the design progresses.

High Enriched Uranium Materials Facility (HEUMF). In a Board letter dated December 27, 2002, concerns were expressed about the confinement system design for HEUMF at the Y-12 National Security Complex, which was based on isolation (holdup) of the facility following a design basis fire event. The Board also identified potential inadequacies related to the form and packaging requirements of uranium for long-term storage at HEUMF. In response, the ventilation system design has been modified to address this safety issue and the contractor is developing a plan to evaluate facility storage containers and determine a minimum set of storage containers that meet facility safety and operational needs.

HEUMF–Geotechnical. In December 2002, the Board informed DOE about concerns with the foundation design for the HEUMF. The contractor had started the structural design process without completing the geotechnical report and using only a best estimate of the required seismic loading. Also, the proposed foundation fill material had not been tested and the response of this material under earthquake loading was unknown. The contractor has subsequently completed the necessary geotechnical studies to address the Board's concerns and is finalizing the foundation design. It was concluded from the studies that the use of limestone fill as a base for the foundation could produce adverse building responses during an earthquake. Currently, the site is evaluating using concrete as the engineered fill below the building foundation.

Nevada Test Site Electrical and Lightning Protection Systems. In a letter dated July 1, 2003, the Board noted that compensatory measures to mitigate potential lightning hazards are needed at the Nevada Test Site (NTS) until robust lightning detection and protection programs have been implemented. The Board also identified deficiencies with the electrical systems for selected facilities at NTS. DOE is evaluating these conditions.

Tritium Extraction Facility Design Review. During the past five years, the Board has conducted extensive design reviews of the Tritium Extraction Facility (TEF) at the Savannah River Site. The Board has provided a series of comments to DOE as the design progressed from its initial conceptual stage to its final form. DOE formally responded to all of the issues raised by the Board and on December 19, 2002, the Board issued a response concurring with DOE's proposed resolution. As a result, the safety of TEF has been significantly improved.

Hanford 221-T Building (T-Plant) Design. The T-Plant has been proposed as a potential storage facility for K-Basin sludge. Due to the age (built in 1944) and configuration of the structure, this facility presented a unique condition, to which the Uniform Building Code's simplified procedures were not easily applied. The Board conducted a structural evaluation and informed DOE in a letter dated May 30, 2003, that the structure was adequate

for it's intended storage mission, but new missions that increased the material at risk would require further evaluation.

Fire Safety at LANL. The Board continued to follow the fire protection upgrade program and Cerro Grande Fire recovery work currently underway at Los Alamos National Laboratory (LANL). In a January 2003 letter to the Secretary of Energy, the Board expressed concern over the safety impacts of rescinding $75M of Cerro Grande funds on fire protection projects. The funds were subsequently reinstated for these critical projects.

Pit Disassembly and Conversion Facility. The Board has been reviewing the Title I design for the Pit Disassembly and Conversion Facility (PDCF). While the main structure of the PDCF Plutonium Processing Building was designed to survive the design basis earthquake, this is not the case for many of the 2-hour fire barriers between fire zones. As a result, a postulated seismically-induced full-facility fire could lead to calculated offsite dose that exceed the evaluation guideline. The Board issued a letter on May 13, 2003, urging DOE to consider upgrading the design of the fire barriers to withstand the design basis earthquake, eliminating the potential for a full-facility fire.

Emergency Operations Center at LANL The Board identified a weakness in DOE's plans for construction of a new Emergency Operations Center (EOC) at LANL. Located on a seismic fault, the EOC could itself become nonoperational during a seismic event, and thus be unable to coordinate emergency operations related to that event. The Board suggested that it would be better to consider the new EOC as one element in an emergency system that included an older EOC and a mobile command center. In FY 2003, a mobile command center was procured and the new EOC system is now nearing completion.

Plutonium-238 Scrap Recovery Line at LANL. In FY 2003, the Board urged DOE and LANL to take action to address safety issues with startup of the new Pu-238 scrap recovery line that had been identified by the Board in FY 2002. DOE and LANL have taken some actions to improve safety, including revising the process hazard analysis. The Board continues to urge DOE and LANL to make improvements in implementing engineered controls and Technical Safety Requirements (TSRs) that are appropriate for a production operation. While these activities are in progress, LANL and DOE have deferred the start-up of the scrap recovery line.

LANL Classified Experiment. For several years, the Board has pushed for resolution of longstanding concerns regarding the hazards of certain portions of the operations associated with the LANL dynamic experiments. The Board has observed some improvements; however, the preliminary design review suffered from inadequate coverage of the relevant engineering disciplines and limited participation from the reviewers. These concerns were communicated to DOE and LANL management. As a result, portions of the design review will be repeated. The Board also successfully enforced agreement on a project standard on vessel construction.

Plutonium Storage at SRS. In response to a Congressional reporting requirement, the Board has performed numerous reviews of the adequacy of facilities and systems for long-term storage of plutonium at SRS. This study is not yet complete, but the Board has already informed DOE of several issues of near-term safety significance regarding fire protection; lightning protection; electrical, instrumentation, and control systems; and the safety bases for plutonium storage and packaging facilities at SRS.

Examples of FY 2002 Accomplishments

Fire Protection in B-1 Wing at Y-12. Proposed upgrades to the fire protection program supporting the wet chemistry area consisted of minor plant improvements and nearly 35 administrative controls. The Board noted significant problems with maintaining administrative controls at Y-12, and identified inconsistencies in the safety

basis supporting this operation. Based on interactions with the Board, NNSA acknowledged the safety issue, re-evaluated the safety basis, and is considering fixed fire suppression to protect the structure and its workers.

Building 12-64 Seismic Analysis at Pantex. In 1998, the Board wrote DOE, expressing concern with the seismic response of Building 12-64. In 2002, NNSA informed the Board of its intention to upgrade Building 12-64 in preparation for resuming nuclear explosive operations there. A subsequent meeting between NNSA personnel and the Board's staff identified concerns with analyses that had been completed to address the Board's original concerns. Efforts to improve the analyses and identify potential engineering solutions have begun.

Plutonium-238 Scrap Recovery Line at LANL. LANL was proceeding toward initial operation of the plutonium-238 scrap recovery line by the end of FY 2002. The Board noted that the project had not fully characterized and developed controls to address the hazards associated with this operation. DOE and LANL actions to respond to these issues and safely start up the scrap recovery line have just begun.

LANL Classified Experiment. The Board noted that for key aspects of this experiment, engineering approaches developed to control hazards have been insufficient, particularly given the stated schedule and intent to complete a documented safety analysis consistent with that schedule. DOE is reviewing potential actions.

Emergency Power System at the LLNL Plutonium Facility. In April, 2002, the Board identified deficiencies in LLNL's emergency electrical power system, which did not meet safety-class standards and IEEE codes. As a result of the Board's efforts, LLNL developed an action plan to correct the deficiencies.

Lightning Protection at LANL. In a letter dated August 6, 2002, the Board noted that the safety-class lightning protection system at the LANL's Weapons Engineering and Tritium Facility does not appear to provide adequate lightning protection for the facility. In addition, the Board attached a report presenting additional deficiencies with the lightning protection systems at various facilities at LANL. LANL personnel are working to address these issues.

Emergency Operations Center at LANL. The new Emergency Operations Center (EOC) was tentatively sited in the deformation zone associated with the seismically active Pajarito fault. The Board noted that basic emergency operations could be impacted in the event of an earthquake, and that it would be better to consider the new EOC as one element in an emergency system which included an older EOC and a mobile command center. LANL agreed that this concept provided a more robust capability, and it is being implemented.

Hanford Spent Nuclear Fuel Project. During FY 2002, substantial progress was made in implementation of Recommendation 94-1 to stabilize spent nuclear fuel from the Hanford K-Basins. DOE completed construction of a system to remove fuel from the K-East Basin for stabilization. The risk from continued storage of the degrading fuel and sludge in the K-East Basin will be mitigated when this system becomes operational in early FY 2003.

Site-Specific Safety Issue Reviews. At LLNL, a review of the emergency power system in Building 332 disclosed a lack of understanding of system vulnerabilities. As a result of this review, the contractor has committed to perform a comprehensive reliability study of the system.

Highly Enriched Uranium Materials Facility at Y-12. The Board's staff conducted in-depth reviews of the design of the Highly Enriched Uranium Materials Facility at Y-12. The Board concluded that additional design work was needed in order to more accurately document the design bases and to specify the general design criteria and specific requirements for safety class systems, structures, and components at the facility. As a result of the Board's efforts, a number of immediate safety improvements were implemented. DOE agreed to address the Board's concerns regarding building foundation alternatives and the need to obtain higher-quality data on soil and rock material properties of the site.

In addition, the general design criteria have been changed to more adequately capture the appropriate codes and standards.

Hanford Waste Treatment Plant. The Board's staff continued the review of the design and construction activities related to the Hanford Site's Waste Treatment Plant. Specific structural reviews focused on the facility site geotechnical issues, site seismicity, and the structural adequacy of the facility basemat design. The Board issued a letter to DOE on August 8, 2002, describing concerns regarding the structural design margins being used in view of the aggressive design and construction schedule for this project.

GOAL 4 — NUCLEAR SAFETY PROGRAMS AND ANALYSIS

Performance Goal 4	Nuclear Safety Programs and Analysis. DOE develops, maintains, and implements regulations, requirements, and guidance; and establishes and implements safety programs at defense nuclear facilities as necessary to ensure adequate protection of health and safety of the workers and the public.

Examples of FY 2004 Accomplishments

DOE Directives. As part of its ongoing review of new and revised DOE directives, the Board and its staff evaluated and provided constructive critiques of 37 directives associated with, but not limited to, worker protection management, electrical safety, software quality assurance, and DOE's Occurrence Reporting and Processing System. At year's end, both staffs were in the process of resolving issues on 19 pending directives to improve the content, clarity, and consistency in safety requirements and guidance. Examples include:

Applicability of DOE Order Requirements. The Board has been instrumental in preventing enactment of a DOE proposal to restrict "the applicability of DOE Orders to only major facility management contractors." This proposal would have the detrimental effect of undermining the application of specific safety-related requirements to a wide range of DOE contractors and sub-contractors, including contractors whose personnel are conducting hands-on work on nuclear materials.

Electrical Safety. In June 2001, the Board urged DOE to take a proactive stance to ensure adequate electrical safety. DOE agreed to update the *Electrical Safety Handbook* in August 2002. However, in July 2003 the Board learned that DOE had deleted much of the technical content in the proposed revision. The Board informed DOE that this was unacceptable, especially in light of the high rate of electrical safety incidents observed across the defense nuclear complex. DOE agreed to revise the handbook to include the details of electrical safety and a guidance for effective electrical safety program. The Board worked closely with DOE to ensure appropriate technical safety content was included. In July 2004, DOE submitted a revised handbook to the Board and to the field for comment. DOE plans to issue the handbook by October 2004.

- **DOE Functional Area Qualification Standards.** During the past three years, the Board has driven DOE to upgrade and incorporate 30 functional area qualification standards for federal employees into the DOE Directives System. During the past year, the Board's staff reviewed and evaluated the final 14 DOE functional area qualification standards in such areas as nuclear safety, construction management, facility maintenance, technical training, and civil engineering. This effort significantly improved the technical content and rigor of these DOE qualification standards, and will help to raise the technical competence of DOE personnel.
- **Hoisting and Rigging Safety.** The Board continued to follow closely DOE's programs, policies, and practices in activities related to hoisting and rigging at defense nuclear facilities. Insights from a number of field reviews were integrated to provide substantive input toward revising DOE-STD-1090-2001, *Hoisting and Rigging*. As a result of the Board's observations and input, significant revisions were made to this standard that will further enhance the safety of hoisting and rigging activities throughout the DOE complex.

Oversight of Complex, High-Hazard Nuclear Operations. During FY 2004, the Board conducted eight public hearings to examine DOE's methods of ensuring safety at defense nuclear facilities. The Board was concerned that changes in oversight contemplated by DOE and NNSA could unintentionally reduce nuclear safety. The Board also sought to benefit from the lessons learned as a result of investigations conducted by the Columbia Accident Investigation Board and the U.S. Nuclear Regulatory Commission following the discovery of the deep corrosion in

the reactor vessel head at the Davis-Besse Nuclear Power Station. The Board concluded that there was cause for concern with regard to the potential increase in the possibility of nuclear accidents in the nuclear defense complex as evident in: (1) DOE's increased emphasis on productivity at the possible expense of safety, (2) the loss of technical competency and understanding at high levels of DOE's organizational structure, (3) the apparent absence of a strong safety research focus, and (4) the reductions in the central oversight of safety. On May 21, 2004, the Board issued Recommendation 2004-1, *Oversight of Complex, High-Hazard Nuclear Operations*, to ensure that the likelihood of a serious accident, facility failure, construction problem, or nuclear incident will not be increased as a result of DOE's well-intentioned changes. On July 21, 2004, the Secretary of Energy accepted the Board's Recommendation and tasked a team to begin developing an adequate implementation plan.

10 CFR 851, *Worker Safety and Health.* The Bob Stump National Defense Authorization Act, Public Law 107-314, directed DOE to promulgate regulations on worker safety and health, rather than rely exclusively on a contractual approach to establish safe and healthy workplaces. On December 8, 2003, DOE provided notification of a proposed Rule on worker protection, Title 10 Code of Federal Regulations, Part 851 (10 CFR 851), *Worker Safety and Health*, in the Federal Register. The Board is required by law to review and evaluate all applicable DOE Orders, regulations, and requirements. The Board conducted a detailed review of the proposed Rule and provided comments to DOE on January 23, 2004. As a result, the Secretary suspended the rulemaking until the Board's issues could be resolved. The Board worked closely with DOE to develop a new regulation, and in June 2004 a draft of the revised Rule was sent to the Office of Management and Budget to be prepared for publication in the Federal Register. The new Rule will assist in implementing Integrated Safety Management at the activity level, helping to assure the safety of the workforce.

Software Quality Assurance (SQA). The Board issued Recommendation 2002-1, *Quality Assurance for Safety-Related Software*, to correct problems caused by inadequate design, implementation, testing, and configuration management of safety-significant computer software. During the past year, DOE has responded to the Recommendation by developing new directives for SQA and software safety, training personnel whose duties involve SQA, and improving the quality of selected software codes used across the complex for the analysis of potential accidents.

Implementation of ISM: Activity-Level Work Planning. The Board reviewed the incorporation of safety into work planning at several NNSA sites, evaluating how each site accomplished the five ISM core functions (define the scope of work, analyze the hazards, develop and implement controls, perform the work, and provide feedback and continuous improvement) for programmatic work as well as maintenance. The Board's reviews revealed significant deficiencies in the ability to effectively incorporate ISM into the process for work planning and control. Problems were noted in the tailoring of generic work documents, the processes used to identify and analyze hazards, the development of appropriate and unambiguous controls to be included in work packages, the use of a hierarchy of controls, and the ability to effectively identify areas for improvement and take action accordingly. In a letter dated May 21, 2004, the Board noted that actions to address some of these issues were being developed; however, significantly more senior management attention was required. DOE and NNSA are just beginning to address these issues. The Board will continue to work with them throughout FY 2005 to improve performance in this key area.

Site Specific Safety Reviews. The development of a comprehensive safety basis and the identification and selection of an appropriate control set are essential cornerstones of safe operation at defense nuclear facilities. The Board conducted numerous reviews of the site-specific safety bases throughout the DOE complex. In particular, the Board reviewed the critical assumptions used in the development of the safety bases as well as the control strategies used to prevent and mitigate accident scenarios of concern for facilities and activities such as the Savannah River Site (SRS) and Hanford tank farms, the Waste Isolation Pilot Plant (WIPP) Mobile Waste Characterization and Loading Units, the Pantex Plant Onsite Transportation Program, Los Alamos National Laboratory's "Armando" subcritical experiment, Hanford Spent Nuclear Program's Sludge Removal Project, Sandia National Laboratories' Auxiliary

Hot Cell Facility, and the Nevada Test Site (NTS) Device Assembly Facility, G-tunnel, and Onsite Transportation Programs. During the course of these reviews, the Board identified a number of specific instances where inappropriate assumptions and methodologies were used in the development of safety bases. These included analyses which did not always use bounding input assumptions and which implicitly credited non-qualified plant indications and equipment in the development of the safety analyses. These deficiencies resulted in situations where the safety analyses may not have appropriately bounded the actual hazard conditions for the facilities concerned. As a result of these concerns, DOE/NNSA and its contractors have implemented a number of corrective actions to address these issues. For example:

- At the Pantex Plant, multi-unit nuclear explosive operations remain suspended for the present until further testing and analysis can resolve the concerns or until adequate controls can be developed. Additional controls have also been imposed on some operations to assure safety given new information regarding electro-static discharge environments.
- At the Hanford Tank Farms, DOE rewrote the Technical Safety Requirements to reinstate key controls (such as Process Control Plans) that the Board had discovered were improperly eliminated. A second independent review was convened to ensure all safety controls had been implemented. The contractor has increased the frequency of taking key tank waste measurements so that current waste conditions were better understood, due to the Board's discovery that the contractor had inadvertently put a tank at risk of retaining and releasing significant quantities of flammable gas.
- DOE is revising the Basis for Interim Operation (BIO) for the WIPP Mobile Waste Characterization and Loading Units to address the significant technical deficiencies identified by the Board, including incorrect modeling of accident scenarios; lack of proper documentation of accident analyses; and potentially inadequate identification and classification of controls for protection of the public and workers.

Recommendation 2002-3. In Recommendation 2002-3, *Requirements for the Design, Implementation, and Maintenance of Administrative Controls*, the Board identified the need for DOE to improve its guidance and expectations with respect to important administrative controls at defense nuclear facilities. As a result of the Board's Recommendation, the Department has developed and implemented a plan to improve the reliability and effectiveness of administrative controls that serve safety functions. Recent efforts have focused on development of a draft standard governing the development and implementation of specific administrative controls in the defense nuclear complex. Additionally, DOE has developed a set of training materials to be used to introduce the new and revised requirements to its field elements. The Board continues to work closely with DOE to finalize this guidance to ensure that a proper safety focus is afforded on administrative controls that provide important safety-related functions at DOE facilities.

NNSA Training and Qualification. The Board noted concerns with Federal oversight of training and qualification at the Pantex Plant. Most notably, required reviews of contractor training and qualification programs were not being performed. In July, the Board broadened their concern to all National Nuclear Security Administration (NNSA) sites, citing the concern that failure to verify the adequacy of training and qualification programs would raise questions regarding the reliability of the significant number of administrative control programs within the NNSA system. In response, NNSA initiated a review at all field sites, and identified three sites, in particular, that did not meet program requirements. However, by August 2004, the Board found that senior NNSA management had not taken prompt action to upgrade the programs at these three sites. A letter to NNSA identified this situation as unacceptable—NNSA was given 45 days to define the bounds of the problem, and 30 days to develop a corrective action plan.

Functions Responsibilities and Authorities (FRA) Documents. The Board continued to follow DOE activities in the closure process associated with Recommendation 98-1, *Resolution of Issues Identified by DOE Internal Oversight*. DOE is also obligated under DOE Manual 411.1, *Safety Management Functions Responsibilities and*

Authorities (FRA) Manual to annually update the FRA Manual to reflect changes in organizational responsibilities and authorities. After significant effort on the part of the Board, DOE has developed a credible FRA Manual at the corporate level, and sub-tier FRAs in key DOE organizational elements (e.g., the Office of Environmental Management, and NNSA). The Board will continue to work with the DOE program offices throughout FY 2004 to refine their FRA documents to ensure safety roles and responsibilities are clearly defined.

NNSA's Facility Representative Staffing and Training. In a letter dated May 14, 2004, the Board noted concerns with the insufficient staffing levels of Facility Representatives (FR), and the inadequate level of activity-specific hazards training, at the Pantex Site Office, the Sandia Site Office, and the Los Alamos Site Office. The Board broadened their concern to all NNSA sites, citing a concern that inadequate staffing of FRs at the NNSA sites will result in significant challenges to NNSA's ability to monitor nuclear weapon activities and perform assigned safety responsibilities. In response, NNSA is taking steps to improve its activity-specific hazard training for FRs, and will conduct more rigorous staffing analyses to ensure that staffing levels for NNSA's FRs are sufficient.

Examples of FY 2003 Accomplishments

DOE Directives. As part of its ongoing review of new and revised DOE directives, the Board and its staff evaluated and provided constructive critiques of 34 directives associated with, but not limited to, worker protection management, electrical safety, software quality assurance, and DOE's Occurrence Reporting and Processing System. At year's end, both staffs were in the process of resolving issues on 26 pending directives to improve the content, clarity, and consistency in safety requirements and guidance. Examples include:

- **Worker Protection Management.** Members of the Board's staff worked closely with DOE to revise the requirements in Change 1 to DOE Order 440.1A, *Worker Protection Management for DOE Federal and Contractor Employees*. This effort was completed in June 2003, culminating in an updated directive that included important new biological agent protection requirements developed in response to increased homeland security awareness.
- **Electrical Safety.** In June 2001, the Board had urged DOE to take a proactive stance to ensure adequate electrical safety. DOE agreed to update the *Electrical Safety Handbook* in August 2002. However, in July 2003 the Board learned that DOE had deleted much of the technical content in the proposed revision. The Board informed DOE that this was unacceptable, especially in light of the high rate of electrical safety incidents observed across the defense nuclear complex. DOE is now revising the handbook.
- **Environment, Safety and Health Reporting.** During most of 2003, the Board worked closely with DOE to consolidate and revise the various DOE reporting orders into a single directive. The Board provided formal comments on draft DOE Order 231.1A, *Environment, Safety and Health Reporting*, plus its many supporting documents, including DOE Manuals 231.1-1, 231.1-2, *Occurrence Reporting and Processing of Operations Information*, and DOE Guides 231.1-1, *Occurrence Reporting and Performance Analysis Guide*, and 231.1-2, *Occurrence Reporting Causal Analysis*. These revisions, which are key to maintaining a strong feedback and improvement program across the defense nuclear complex, are being implemented at the start of FY 2004. The Board will monitor closely the effectiveness of the revised program during this implementation phase.

National Nuclear Security Administration (NNSA) Policy Letters. During FY 2003, NNSA instituted an internal system of directives under the authority of Public Law 106-65. However, the Board initiated a review of the system and found that the system architecture had not been adequately described, directives being issued were potentially in conflict with existing DOE directives, and all of the conditions of the public law had not yet been satisfied. The Board worked closely with NNSA throughout the year to design a system that would meet the needs of NNSA, while protecting the integrity of the environment, safety, and health requirements already established under DOE.

This effort will continue into FY 2004. In the interim, the Board has reviewed 22 advance copies of proposed NNSA Policy Letters, in anticipation of their issue.

Software Quality Assurance: Considerable Board resources were expended during FY 2002 reviewing draft DOE Order 203.X, *Software Quality Assurance (SQA).* As a result of inadequate progress toward resolution of the Board's concerns with SQA, on September 23, 2002, the Board issued Recommendation 2002-1, *Quality Assurance for Safety-Related Software.* Development of the Implementation Plan (IP) for this recommendation required significant interaction between the Board and DOE—it was finally accepted by the Board on April 10, 2003. The Board will follow DOE's implementation efforts closely in FY 2004. In a related effort, members of the Board's staff are leading efforts to revise and update ANSI/ANS Standard 10.4, *Guidelines for the Verification and Validation of Scientific and Engineering Computer Programs for the Nuclear Industry.* This standard will be important to both the Nuclear Regulatory Commission (NRC) and DOE.

Integration of Hazards Analyses. The Board reviewed the contents of several DOE directives that contain requirements for hazard and accident analyses, performed site reviews, and identified less-than-adequate implementation of safety requirements due to inconsistencies and lack of integration of the directives. The directives included DOE Guides for implementation of 10 CFR 830, and DOE Orders 151.1A, 420.1, and 451.1A. As a direct result of the Board's activities, DOE issued a handbook entitled *Integration of Multiple Hazard Analysis Requirements and Activities*, which has helped several DOE contractors to perform their activities in a safer, more integrated, and significantly more cost effective manner. Several contractors realigned their organizational structure to benefit from the Board's findings and achieved improved operational safety.

Safety Analysis Methodology. As part of its ongoing review of the adequacy of health and safety directives, the Board noted a number of weaknesses with respect to the implementation of the methodology associated with the performance of safety analyses at several defense nuclear facilities. Consequently, the Board issued a series of letters to the Secretary of Energy outlining these concerns. As a result, the Department committed to increased attention and vigilance in its acceptance and oversight of documented safety analyses.

Design Requirements and Guidance for Facilities. The Board had previously noted that the design requirements for nuclear facilities in DOE Order 420.1, *Facility Safety,* and its associated guidance documents were not being implemented at LANL and requested a report describing the status of implementation of the DOE Order and applicable guidance at all NNSA sites having defense nuclear facilities. Such requirements and guidance are important for properly selecting discipline-specific industry codes and standards for safety-class and safety-significant structures, systems and components. As a result, NNSA has now developed complete crosswalks between the codes and standards in the implementation guide and those in the appropriate contractor documents such as design manuals, design criteria, and procedures, and is having contractors update their internal requirements and guidance documents.

National Nuclear Security Administration Training and Qualification. In a letter dated June 5, 2003, the Board noted concerns with Federal oversight of training and qualification at the Pantex Plant. Most notably, required reviews of contractor training and qualification programs were not being performed. In July, the Board broadened their concern to all National Nuclear Security Administration (NNSA) sites, citing the concern that failure to verify the adequacy of training and qualification programs would raise questions regarding the reliability of the significant number of administrative control programs within the NNSA system. In response, NNSA has initiated a review at all field sites. Necessary corrective actions will be implemented in FY 2004.

Functions Responsibilities and Authorities (FRA) Documents. The Board continued to follow DOE activities in the closure process associated with Recommendation 98-1, *Resolution of Issues Identified by DOE Internal Oversight.* DOE is also obligated under DOE Manual 411.1, *Safety Management Functions Responsibilities and*

Authorities (FRA) Manual to annually update the FRA Manual to reflect changes in organizational responsibilities and authorities. Despite significant effort on the part of the Board, DOE remains without a credible FRA Manual at the corporate level, and without sub-tier FRAs in a number of DOE organizational elements. The Board will continue to work with the DOE program offices throughout FY 2004 to revise their FRA documents to ensure safety roles and responsibilities are clearly defined.

Contractor System Engineers. The Board worked with DOE to develop formal training and qualification requirements for contractor system engineers in response to Board Recommendation 2000-2, *Configuration Management, Vital Safety Systems*. The Board conducted progress reviews of the programs at the Y-12 National Security Complex, the Pantex Plant, the Hanford Site (Fluor Hanford, CH2M Hill, and Pacific Northwest National Laboratory), and Lawrence Livermore National Laboratory (LLNL), finding that the effectiveness of site contractors' systems engineer programs varied significantly. Only the contractors for Y-12 and the Hanford tank farms had maturing, well-founded, and robust programs. The contractors' systems engineer programs at the remaining sites suffered from a number of shortcomings and were much less effective. The Board will continue to engage with DOE as the contractors' system engineer programs are implemented.

Federal Technical Oversight of Safety Systems. While maintaining DOE's implementation of Board Recommendation 2000-2, *Configuration Management, Vital Safety Systems*, the Board found that the DOE subject matter expert (SME)/systems engineer programs were weak at all four sites reviewed. Although each DOE site office had established an SME organization, few site offices had a fully staffed and implemented program. DOE SMEs have not yet had a meaningful presence in the field, and the intended benefits from these programs in terms of contractor oversight have yet to be realized fully. While DOE has developed an adequate path forward to provide qualified federal personnel, no site reviewed had fully achieved that objective. The Board will continue to urge DOE to apply more senior management attention and resources to staff and qualify technical personnel for these systems engineering organizations.

Site Specific Safety Reviews. The Board conducted a number of site-specific safety reviews in the DOE complex. In particular, the Board conducted reviews associated with the adequacy of the development and implementation of the documented safety analyses (DSAs) performed as a result of the requirements specified in 10 CFR 830, *Nuclear Safety Management*. The Board performed detailed safety reviews at the following facilities: Savannah River Site (SRS) and Hanford tank farms, Lawrence Livermore National Laboratory (LLNL) plutonium facility, Waste Isolation Pilot Plant (WIPP) remote handled transuranic waste operations, and at the Nevada Test Site (NTS) device assembly facility, radioactive waste management complex and U1a underground facility. During the course of these reviews, the Board identified a number of important safety issues that required resolution by DOE. For example, the SRS review identified the need for additional rigor in the protection of important assumptions and selection of appropriate controls. At LLNL, the Board's review identified the need for additional analysis to ensure the appropriate safety classification of important equipment and also the need for DOE to exercise increased vigilance in ensuring that all the necessary conditions of approval are being met with respect to safety evaluation reports. At NTS, the Board found that NNSA and its primary support contractor did not have adequate staff or nuclear safety management programs to support the operation of nuclear facilities. DOE and NNSA are taking corrective actions for all of these findings.

Administrative Controls. In late 2002, the Board noted that many administrative controls currently serve in safety-related applications, but may not have been developed with the same rigor as an engineered control. As a result, these administrative controls may not always have the same level of reliability as would be expected from an analogous safety-related engineered feature. Therefore, the Board issued Recommendation 2002-3, *Requirements for the Design, Implementation, and Maintenance of Administrative Controls*. In response, DOE developed an Implementation Plan that committed to strengthen the guidance and expectations associated with the development of

administrative controls and to review the existing set of administrative controls to ensure that these revised expectations are being met. This plan will be implemented throughout FY 2004-5.

Software Quality Assurance at the Pantex Plant. The Pantex Plant contractor attempted to reduce errors associated with several administrative control programs by using computer-based systems. Due to inadequate software quality assurance (SQA) practices, there has been a continuing series of problems with the installed Move Right software package, resulting in errors in material control and accountability. Similar problems were noted in the development of the site's Interactive Electronic Procedures. The Board highlighted these issues to DOE, and significant corrective actions are in progress for both of these software products. Additionally, Pantex procedures for improved SQA are being developed.

Hoisting and Rigging Safety. The Board has noted that reportable hoisting and rigging events continue to occur throughout the defense nuclear complex. As a result, the Board has developed a special initiative to review the adequacy of hoisting and rigging operations at selected DOE facilities. During this fiscal year, the Board completed reviews at the Savannah River Site and the Pantex Plant. Significant feedback for improvement was provided to the respective facilities. As a result of the success of this initiative, additional reviews are planned for the coming fiscal year.

Fire Safety at LANL. In a January 2003 letter to the Secretary of Energy, the Board expressed concern over the safety impacts of rescinding $75M of Cerro Grande funds on fire protection projects, as proposed by DOE. The funds were subsequently reinstated for these critical projects for FY 2003.

Unreviewed Safety Question (USQ) Procedures. The USQ process required by 10 CFR 830.203 is the mechanism for ensuring that the substantial investment in the safety bases for defense nuclear facilities isn't invalidated by undocumented and/or unauthorized changes. In FY 2003, the Board reviewed seven USQ procedures and identified substantial areas of noncompliance with the governing requirements. Responding to discussions of the issues raised, DOE required substantial revisions of the procedures, and required the contractors to include guidance in the procedures submitted for approval that had previously been relegated to documents that were not subject to DOE approval.

Examples of FY 2002 Accomplishments

As part of its ongoing review of new and revised DOE directives, the Board and its staff evaluated and provided constructive critiques of 19 directives associated with, but not limited to, hazards from natural phenomena, quality assurance, facility representative program, and DOE's emergency management program. At year's end, both staffs were in the process of resolving issues on 23 pending directives to improve the content, clarity, and consistency in safety requirements and guidance. Examples include:

- **Natural Phenomena Hazards.** Members of the Board's staff worked closely with DOE to revise criteria for design and evaluation of DOE facilities' ability to withstand hazards arising from natural phenomena such as earthquakes, severe storms, and floods (Revision of DOE-STD-1020-94). This effort was completed in January 2002, culminating in an updated standard meeting the requirements of current model building codes such as IBC 2000 and current industry standards. Three related standards (DOE-STD-1021-93, -1022-94 and -1023-95) were reviewed and reaffirmed, addressing performance categorization guidelines for systems, structures, and components; site characterization criteria; and criteria for assessment of natural phenomena hazards.

- **Software Quality Assurance.** Considerable staff resources were expended during FY 2002 in reviewing a new draft DOE Order, O-203.X, *Software Quality Assurance.* The Board's staff submitted formal comments to DOE in December 2001. The resolution of the staff's comments, as well as those from internal-DOE reviewers, is still pending.
- **Facility Representative Program.** The Board's staff reviewed the qualification standard for DOE Facility Representatives (TRNG-0019, *Facility Representative Functional Area Qualification Standard*). As a result of the staff's efforts, as well as those of DOE participants, this key standard was issued expeditiously in April 2002.
- **Emergency Management.** During 2002, the Board's staff provided comments on DOE's draft order on emergency management, DOE O 151.1B, *Comprehensive Emergency Management System.* In addition, the staff reviewed and commented on revisions to an associated DOE Manual addressing programs for coping with: (1) onsite emergencies involving hazardous materials at fixed facilities, and (2) offsite emergencies associated with transportation of hazardous materials in DOE's possession. These revisions, which are key to strengthening DOE's emergency response posture as a result of the events of September 11, 2001, were still pending at the end of FY 2002. The Board will continue to urge DOE to strengthen the emergency management directives to ensure that a fully responsive department-wide emergency management program is in place.

Contractor System Engineers. The Board worked with DOE to develop formal training and qualification requirements for contractor system engineers in response to Board Recommendation 2000-2, *Configuration Management, Vital Safety Systems.* As a result, DOE revised its directives to require the contractors to implement a formal system engineering program. The sites have begun to implement these programs.

Federal Technical Oversight of Safety Systems. In Board Recommendation 2000-2, *Configuration Management, Vital Safety Systems,* the Board urged DOE to identify federal expertise needed to ensure effective oversight of contractor safety systems. In response, DOE's performed an analysis that identified 31 additional personnel were needed for this important function, and that critical technical skills gaps existed in the areas of mechanical engineering, fire protection, electrical engineering, instrumentation and control, and nuclear criticality. Also, DOE determined that the majority of the skill gaps resided in the Office of River Protection, Los Alamos Area Office, Oakland Area Office, and the Y-12 Area Office. The Board and its staff will continue to engage DOE as they recruit, train and qualify federal employees for oversight of the vital safety systems.

Nuclear Criticality Safety Program. The Board continued to stress the need for stable funding for future criticality safety program elements, dedicated emphasis on maintenance of criticality safety engineering training, and the need to minimize the gap in criticality services during the relocation of the Los Alamos Criticality Test Facility. Throughout 2002, the staff conducted onsite reviews of selected facilities at LANL, SRS, and ORNL and observed improving trends in criticality safety as a result of the Board's efforts under Recommendation 97-2, *Continuation of Criticality Safety at Defense Nuclear Facilities.*

Human Factors Engineering. The staff conducted site-specific reviews and collected complex-wide information related to the use of human factors engineering principles in the evaluation of the appropriateness and effectiveness of administrative controls. In particular, reviews conducted at the Pantex and LLNL Sites in November 2001 and February 2002, respectively, focused on the development, implementation, and verification of selected administrative controls. Further, another safety review at the Y-12 facility in April 2002 indicated a high reliance on administrative controls in lieu of engineered fire protection features. In letters dated January 15, 2002 and May 13, 2002, the Board communicated a number of specific concerns related to the use of administrative controls. As a result of the Board's effort, DOE now recognizes the safety issues, and is working to resolve them.

Contractor Training and Qualification. The Board's staff reviewed the safety basis and supporting programs of the Waste Examination Facility (WEF) at the Nevada Test Site (NTS) in January 2002 and its readiness to begin operations as a Hazard Category 3 (HC-3) nuclear facility. The staff noted that many administrative support programs, such as the training and qualification program, were not adequately developed nor implemented to meet the requirements of nuclear facilities as addressed in *10 Code of Federal Regulations (CFR) Part 830, Nuclear Safety Management.* The training and qualifications did not have the additional rigor necessary for an HC-3 nuclear facility. Training was not adequate for facility operators or outside maintenance support to perform surveillance requirements or pre-operational checks. The Board letter of March 7, 2002, transmitted these observations. DOE's efforts to address the issues is ongoing.

Site-Specific Safety Issue Reviews. At the Hanford Site, a review of the maintenance program at the Spent Nuclear Fuel Project program identified weaknesses which threatened to delay the schedule for removing the fuel from the reactor basins. Similarly, at Y-12, reviews of the maintenance program identified programmatic weaknesses which significantly impaired the effectiveness of the program. As a result of these reviews, DOE and the contractor improved activities which have strengthened both programs. At SRS, a review of the hazards associated with the storage of depleted uranium resulted in a Board reporting requirement and DOE initiatives to consolidate and disposition several metric tons of this hazardous material at the site for safer long term storage.

Recommendation 2000-2. Board Recommendation 2000-2, *Configuration Management, Vital Safety Systems,* addressed the degrading condition of safety systems, calling upon DOE to assess the condition of vital safety systems, designate technically competent system engineers, codify this program in the DOE Directives System, and ensure that DOE possesses the requisite technical expertise to monitor and oversee these systems. In response, DOE completed detailed reviews of vital safety systems that identified equipment degradation as well as programs (such as the drawing control) that needing improvement. DOE is taking steps to address these deficiencies. As a result of the Board's efforts, DOE has taken positive steps to ensure the condition of vital safety systems is understood and controlled.

Unreviewed Safety Question Procedures. The Unreviewed Safety Question (USQ) process required by 10 CFR 830.203 is the mechanism for ensuring that the substantial investment in the safety bases for defense nuclear facilities isn't invalidated by undocumented and/or unauthorized changes. This year, the Board initiated a complex-wide review of the USQ process and implementing procedures at Pantex, LLNL, LANL, and SRS, As a result of these interactions, substantial improvements were made to the Pantex Plant's procedure to bring it into compliance with 10 CFR 830.203. In addition, contractor personnel agreed to incorporate specific improvements into future revisions of the LLNL, LANL and SRS procedures.

Integrated Safety Management (ISM) Annual Review Process. The Board's staff continued to monitor the implementation and effectiveness of ISM at defense nuclear facilities. The Board noted that considerable progress had been made in the implementation of ISM, but that continued DOE efforts were necessary to maintain ISM systems to ensure continuous improvement across the complex. The Board communicated specific concerns with the annual ISM review process in letters. In response, DOE held a conference to explore methods for strengthening the annual ISM review process and to share lessons learned.

APPENDIX B: GSA LETTER TRANSMITTING "SAS 70" AUDIT RESULTS

GSA

GSA Office of the Chief Financial Officer

September 26, 2005

To GSA's Financial Services Client Agency

This memorandum transmits PricewaterhouseCoopers LLP's (PwC) ***Report on Controls Placed In Operation and Tests of Operating Effectiveness for the Period July 1, 2004 to June 30, 2005*** for GSA's Heartland Finance Center External Services Division (ESD), Pegasys Financial Management (Pegasys system. This report was prepared in accordance with standards established by the American Institute of Certified Public Accountants. Commonly known as a "SAS 70 Review", the report details PwC's examination of the processing of transactions by ESD. As a service organization, ESD uses the Pegasys system to provide financial and administrative services to external client agencies.

We are proud to inform our clients that GSA received a favorable audit opinion on the relevant aspects of GSA's controls that had been placed in operation as of June 30, 2005. This report is for your review and use in your agency's audit. Independent audit firms can rely on another audit firm's SAS 70 audit activities, thus eliminating redundant audit work and saving time and money.

This report contains "Sensitive – but Unclassified" information regarding GSA's Pegasys Financial Management System controls that may be restricted from public disclosure. Access to the report should be limited to your independent audit firm for strict use in their audit activities, and is not to be released outside your agency.

If you have any questions about this report, please feel free to contact Sharon Pugh at 816-926-5203.

Sincerely,

D. A. Glenn

Douglas A. Glenn
Deputy Chief Financial Officer

Enclosure

U.S. General Services Administration
1800 F Street, NW
Washington, DC 20405-0002
www.gsa.gov

APPENDIX C: LIST OF ABBREVIATIONS AND ACRONYMS

BIO ..... Basis for Interim Operations
CD ..... critical decision
CFR ..... Code of Federal Regulations
CY ..... calendar year
D&D ..... deactivation and decommissioning
DNFSB ..... Defense Nuclear Facilities Safety Board
DOE ..... (U.S.) Department of Energy
EH ..... DOE Office of Environment, Safety and Health
EM ..... DOE Office of Environmental Management
FR ..... facility representative
FRA ..... Functions, Responsibilities, and Authorities (Manual)
FTF ..... Filter Test Facility (at Oak Ridge)
FY ..... fiscal year
GPRA ..... Government Performance and Results Act
HLW ..... high-level (radioactive) waste
HEPA ..... high-efficiency particulate air (filter)
HEUMF ..... Highly Enriched Uranium Materials Facility
I&C ..... instrumentation and control
IEEE ..... Institute of Electrical and Electronics Engineers
INEEL ..... Idaho National Engineering and Environmental Laboratory
ISM ..... Integrated Safety Management
KAMS ..... K-Area Material Storage (at SRS)
LANL ..... Los Alamos National Laboratory
LLNL ..... Lawrence Livermore National Laboratory
NNSA ..... National Nuclear Security Administration
NTS ..... Nevada Test Site
OMB ..... Office of Management and Budget
ORNL ..... Oak Ridge National Laboratory
ORR ..... Operational Readiness Review
PDCF ..... Pit Disassembly and Conversion Facility (at SRS)
PDSA ..... Preliminary Documented Safety Analysis
RFETS ..... Rocky Flats Environmental Technology Site
SDOR ..... Saltless Direct Oxide Reduction
SNL ..... Sandia National Laboratories
SQA ..... software quality assurance
SRL ..... Special Recovery Line
SRS ..... Savannah River Site
SS-21 ..... Seamless Safety for the 21st Century
TSR ..... Technical Safety Requirement
USQ ..... Unreviewed Safety Question
WEF ..... Waste Examination Facility (at NTS)
WETF ..... Weapons Engineering Tritium Facility (at LANL)
WIPP ..... Waste Isolation Pilot Plant
WTP ..... Waste Treatment Plant (at Hanford)
Y-12 ..... Y-12 National Security Complex
^{229}Th thorium-229
^{233}U uranium-233
^{238}Pu plutonium-238