

FY 2001  
BUDGET REQUEST  
TO THE  
CONGRESS

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Defense Nuclear Facilities Safety Board



February 2000

## GPRA STRATEGIC PLANNING REQUIREMENTS

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 first Strategic Plan was transmitted to Congress and distributed to the public on October 1, 1997 (see the Board's Internet Home Page at [www.dnfsb.gov](http://www.dnfsb.gov)).

Agencies are also required to develop annual performance plans which indicate the progress toward achievement of the strategic plan's goals and objectives. In view of the close relationship between the measurable goals in an annual performance plan and the level of resources requested and subsequently funded, this budget document includes a detailed presentation on the Board's FY 2000 and FY 2001 performance plans, together with examples of performance accomplishments in FY 1999, in Section 3 of this request.

**Defense Nuclear Facilities  
Safety Board**  
FY 2001 Congressional Budget Request

**APPROPRIATION & EXPENSE SUMMARY**

(Tabular dollars in thousands).

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**OPERATING EXPENSES**

	ACTUAL FOR <u>FY 1999</u>	PROJECTED FOR <u>FY 2000</u>	BUDGET REQUEST FOR <u>FY 2001</u>
New Budget Authority	16,500	16,935*	18,500
Obligations	17,805	17,984	18,921
Outlays	17,027	17,500	18,000

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Authorization: National Defense Authorization Act, Fiscal Year 1989 (amended the Atomic Energy Act of 1954 (42 U.S.C. 2011 et seq.) by adding new Chapter 21 -- Defense Nuclear Facilities Safety Board.

National Defense Authorization Act for Fiscal Year 1991  
(P.L. 101-510-Nov. 5, 1990),  
National Defense Authorization Act for Fiscal Years 1992 and 1993  
(P.L. 102-190-Dec. 5, 1991),  
Energy Policy Act of 1992  
(P.L. 102-486-Oct. 24, 1992), and  
National Defense Authorization Act for Fiscal Year 1994.  
(P.L. 103-160-Nov. 30, 1993).

\* \$17,000,000 appropriation; \$65,000 rescission.

**Defense Nuclear Facilities  
Safety Board  
FY 2001 Congressional Budget Request**

**PERSONNEL SUMMARY**

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	<u>FY 1999 ACTUAL</u>	<u>FY 2000 BUDGET PLAN</u>	<u>FY 2001 BUDGET REQUEST</u>
Statutory Personnel Ceiling: (FTE's) <sup>1/</sup>	150	150	150
FTE Usage <sup>2/</sup>	94	99	105
Board Members & Permanent Employees at End of Fiscal Year	95	105	105

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<sup>1/</sup> National Defense Authorization Act for FY 1992 and FY 1993, P.L. 102-190, raised the Board's statutory employee ceiling from 100 to 150 full-time staff to accommodate mandated additional nuclear weapons safety responsibilities. This statutory employment ceiling does not include Board Members, who by virtue of the Board's enabling legislation may hire up to the equivalent of 150 full-time employees. See 42 U.S.C. § 2286b(A).

<sup>2/</sup> Includes 5 full-time Board Members.

**Defense Nuclear Facilities  
Safety Board  
FY 2001 Congressional Budget Request**

**PROPOSED APPROPRIATION LANGUAGE**

**SALARIES AND EXPENSES**

For necessary expenses of the Defense Nuclear Facilities Safety Board in carrying out activities authorized by the Atomic Energy Act of 1954, as amended by Public Law 100-456, section 1441, [17,000,000] \$18,500,000, to remain available until expended. (*Energy and Water Development Appropriations Act, 2000*)

**DEFENSE NUCLEAR FACILITIES  
SAFETY BOARD  
FY 2001 Congressional Budget Request**

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**Defense Nuclear Facilities  
Safety Board  
FY 2001 Congressional Budget Request**

**1. EXECUTIVE SUMMARY**

The Defense Nuclear Facilities Safety Board's (DNFSB or Board) FY 2001 Budget Request is for \$18,500,000 and 105 Full-time Equivalent (FTE) staff years.

As the numbers in the following table illustrate, the Board has not received an annual appropriation that approaches the President's budget request since FY 1995:

<u>Fiscal Year</u>	<u>President's Budget Request</u>	<u>Actual Appropriation</u>	<u>Reduction</u>
FY 1995	\$18,000,000	\$17,865,000	\$135,000
FY 1996	18,500,000	16,978,000	1,522,000
FY 1997	17,000,000	16,000,000	1,000,000
FY 1998	17,500,000	17,000,000	500,000
FY 1999	17,500,000	16,500,000	1,000,000
FY 2000	17,500,000	16,935,000 *	565,000

In past fiscal years, the Board has been able to forestall the impact of the above funding reductions by instituting temporary cost savings measures such as reducing expenditures for outside technical experts, and deferring the replacement of technical staff lost due to attrition.

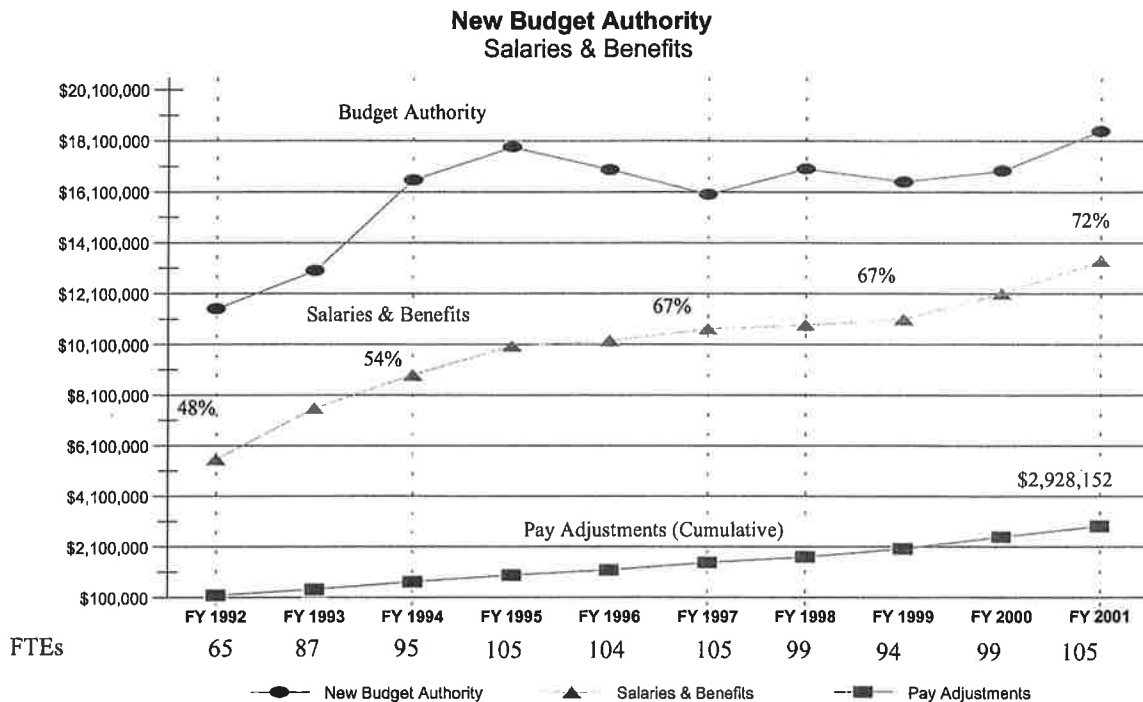
These stopgap expenditure adjustments will no longer compensate for the projected deficits in FY 2001 and beyond. The Board is requesting a significant increase in new budget authority to counter the compounding growth effects in non-discretionary expenses that have drained the Board's emergency carryover funds, and prevented the Board from replacing lost key technical expertise required to conduct its public and worker health and safety oversight mission throughout the Department of Energy's (DOE) nuclear weapons complex. This budget request has been prepared to address the following issues that have a direct impact on the Board's ability to fulfil its statutory mission.

\* \$17,000,000 appropriation; \$65,000 rescission.



## Unfunded Pay Increases.

The following graph summarizes the Board's financial problem. While actual appropriations have remained essentially flat or have decreased in recent fiscal years, the salary and benefits account has been steadily rising due to non-discretionary Employment Cost Index (ECI)-based national pay schedule adjustments and locality pay increases. In effect, the Board has been forced to absorb approximately \$3,000,00 in pay adjustments since FY 1992. With a 4.94 percent pay adjustment in FY 2000 and a projected 3.7 percent adjustment for FY 2001, the funding situation becomes untenable without a substantial increase in new budget authority.



## New GSA Rent Policy.

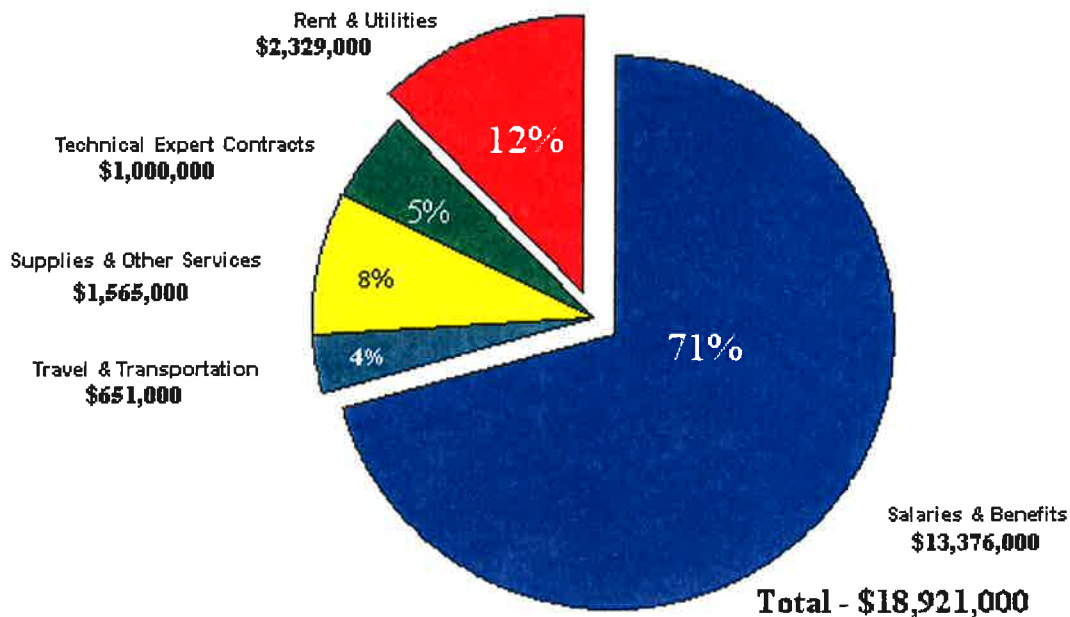
GSA has established a "New Pricing" policy designed to recover more expenses and GSA overhead from tenants. Based on the best information that the Board could obtain from GSA, the Board's projected rental payment for FY 2001 is \$2,187,000. This non-discretionary operating expense represents a 7 percent increase in rent above the \$2,044,000 the Board is paying for the identical office space in FY 2000.

## Loss of Key Technical Personnel.

To offset the shortfall in funds caused by reduced appropriations and rising non-discretionary costs described above, the Board has not replaced all of the key technical staff who have left the Board due to attrition. As depicted in the following chart, the Board's budget is used primarily to pay the salaries and benefits of its employees, representing 71 percent of its

total projected obligations for FY 2001. Due to current funding constraints, the Board's staff has been reduced through attrition to 96 employees as of February 1, 2000, or 64 percent of the Board's statutory employment ceiling of 150 full-time staff.

### Total Projected Obligations for FY 2001



#### Reduced Use of Outside Experts.

Where it is not economical or efficient to have permanent staff with expertise in a particular subject, the Board has relied on outside technical experts with unique experience or skills as outlined in Appendix C to perform specific reviews or studies. However, the Board has reduced its use of outside technical contractors by 40 percent, or approximately \$1,400,000 since FY 1995 due to the lack of sufficient funds. Consequently, some of these alternative sources of expertise are no longer available to the Board. The budget reflects a further reduction of \$1,000,000 in FY 2001.

#### A Growing Safety Oversight Mission.

DOE is committed to numerous new design and construction projects during the next decade to provide nuclear weapons stockpile support for the Nation's national defense and to resolve the remaining health and safety issues that are the historical legacy of weapons production. For example, tritium extraction for stockpile use, conduct of nuclear

experimentation, and preservation of the strategic pit inventory, will require the Board to oversee the operation of new defense nuclear activities. DOE's Office of Defense Programs also is developing a strategy that will change the balance and location of some defense nuclear work throughout the complex. As this strategy is implemented, some sites that have seen lesser amounts of nuclear work in recent years (such as the Lawrence Livermore National Laboratory and the Nevada Test Site) will significantly increase program activity.

While focusing much attention on existing defense nuclear facilities and operations, the Board also is required by statute to review design efforts, construction activities, and the initial operation of new defense nuclear facilities, and to make timely recommendations on any needed public health and safety improvements to the Secretary of Energy. Safely implementing the transfer of hazardous defense nuclear activities between sites—with the associated need to assure competent personnel, rigorous authorization basis control, and effective operational safety management—will continue to pose many challenges for DOE and its contractors, as well as associated oversight challenges for the Board. This significant projected increase in workload, described more fully in Section 1.3, will require the Board to augment its technical staff in the areas of design, safety analysis, and operations.

### **The “Bottom Line.”**

The technical complexity and safety risks associated with the life cycle of this Nation's nuclear weapons, including the overall health and safety of the public, dictate a continuing need for strong Federal leadership and support. Safety oversight programs, such as this Board's, that directly impact the health and safety of the public have traditionally been given priority consideration even during periods of fiscal constraint due to the potential for significant loss of life, injury, or property damage if an accident should occur.

As clearly recognized by the Congress when establishing the Board, the ability to effectively carry out an independent, technical oversight program throughout the DOE weapons complex is heavily dependent on the technical capability of the Board Members and staff.

*The conferees believe that the DNFSB is a unique Federal agency, in that its mission (is) to oversee the activities of another federal department whose work is highly technical and potentially dangerous, and that to properly carry out its mission, not only the DNFSB members but also its limited staff must be technically competent in all major phases of nuclear safety.<sup>1</sup>*

As explained in the preceding narrative, the Board's ability to perform its statutory mission has been severely hampered by the rapid growth in non-discretionary expenses, coupled with an increasing workload. To offset funding deficiencies, the Board has not replaced all key technical staff that have left, and currently is operating at 64 percent of its statutory employment ceiling. As a small agency, the Board has found it increasingly difficult to absorb these budget

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<sup>1</sup> National Defense Authorization Act for Fiscal Year 1991, Conference Report, Title XXXII, October 23, 1990.

reductions and non-discretionary cost increases without directly impacting its technical staff safety oversight capability, and compromising its statutory mission.

For FY 2001, the Board must request additional budget authority to meet the projected payroll for its existing staff, which includes an expected 8 new hires during FY 2000 to offset losses from previous years. These staff are needed to fulfill the Board's public and worker health and safety oversight responsibilities directly related to DOE's nuclear weapons programs. The recruitment and retention of scientific and technical staff with outstanding qualifications have been and will continue to be critical to the successful accomplishment of the Board's mission.

Barring a change in current U.S. national security policy or an unforeseen incident affecting DOE defense nuclear programs, an FY 2001 appropriation of \$18,500,000 should be sufficient to offset actual and planned statutory pay adjustments affecting staff salaries and benefits, with no increase in personnel in FY 2001 and the 7 percent annual increases in the GSA bills for leased office space. This budget is the minimum needed for the Board to conduct adequately its statutorily mandated health and safety mission and maintain a small emergency fund to respond, if necessary, to a serious accident or other unexpected safety incident at a DOE defense nuclear facility.

## **1.1 SAFETY OVERSIGHT STRATEGY**

The workload of the Board is prioritized to focus attention on the most hazardous DOE operations and complex-wide health and safety issues, consistent with the Board's enabling statute, safety oversight approach, and strategic plan. Specifically, the Board has concentrated its attention on the following sites, plants, facilities, and related activities:

- Pantex Plant (Texas) - Stewardship/maintenance of the nuclear weapons stockpile and dismantlement of nuclear weapons.
- Savannah River Site (South Carolina) - Vitrification of high-level wastes at the Defense Waste Processing Facility, the operation of Tritium Facilities in support of the active weapons stockpile, and stabilization of materials that are residuals from former production.
- Nevada Test Site - Stewardship/maintenance of the nuclear weapons stockpile, including subcritical experiments, and the capability to disposition damaged nuclear weapons.
- Oak Ridge Y-12 Plant (Tennessee) - Supporting safe stewardship/maintenance of nuclear weapons in the processing of highly enriched uranium, fabrication, assembly, and disassembly of nuclear weapons components and sub-assemblies, and storage of nuclear materials including uranium from disassembly of secondaries for nuclear weapons.

- Los Alamos National Laboratory (New Mexico), Lawrence Livermore National Laboratory (California), and Sandia National Laboratories (New Mexico and California) - Support for stockpile management and stewardship of the Nation's nuclear weapons, including research and enhanced surveillance of aging weapons.
- Hanford Site (Washington) - Preparations for remediation of 177 high-level radioactive waste tanks, stabilizing corroding highly radioactive fuel elements currently stored in the K-East and K-West nuclear fuel storage basins, and the stabilization of residuals of plutonium production at Hanford (e.g., at the Plutonium Finishing Plant).
- Rocky Flats Environmental Technology Site (Colorado) - Stabilization of residuals of plutonium production and lowering of contamination in numerous highly contaminated buildings.

Maintaining an effective safety oversight program that fulfills the broad mandates of the Board's enabling legislation (see Appendix A) requires a constant reassessment of health and safety conditions throughout the DOE defense nuclear complex. Sources of information used by the Board in making its assessments, evaluations, or recommendations to the Secretary of Energy are varied. They include testimony from public hearings and meetings, Congressional inquiries, site representative reports, staff issue papers, site visits, implementation plans for the Board's recommendations, responses to reporting requirements, and correspondence from workers and union representatives at the DOE sites. Based on the Board's assessment of the risks and the potential impacts to public or worker health and safety, priorities will change resulting in revised staff technical review assignments.

With ten years of operating experience, the Board has developed a strategy for maximizing the effectiveness of its resources by executing its safety oversight responsibility according to the following guiding principles:

- The primary responsibility for ensuring protection of the health and safety of the public and workers belongs with DOE line managers and extends in an unbroken chain from the Secretary of Energy to the workers on the floor.
- As an external "action-forcing" agency, the Board influences DOE line management actions to the extent needed to achieve improved safety objectives.
- Effective safety management demands that safety expectations be clearly defined and tailored to specific hazards at all levels—site, facility, or activity.
- Technical expertise is required to define and ensure compliance with controls commensurate with the identified hazards.
- Safety oversight activities are prioritized largely by risks to the public and the workers. Key indicators are the types and quantities of nuclear material at risk, and the process and setting of the operations involved.

- Safety oversight responsibilities for defense nuclear facilities will be accomplished in full cooperation with other agencies, such as individual states and the EPA for final cleanup, demolition, and environmental restoration activities, in compliance with responsibilities mandated by the Atomic Energy Act of 1954, as amended, and the federal environmental laws.

Various Executive Orders, including E.O. 12862, *Setting Customer Service Standards*, have stressed the need for Executive Branch agencies to be sensitive to the need for public involvement. The Board has used open public meetings and hearings, as well as its Internet Web Page located at [www.dnfsb.gov](http://www.dnfsb.gov), to increase public awareness and communication on Board activities. The Board has continued its practice of meeting with state and local officials, labor leaders, DOE facility workers, citizen advisory boards, public interest groups, and area residents to exchange information and inform interested parties of the Board's work.

Public meetings and hearings have been held by Board Members in the vicinity of DOE defense facilities at the Hanford Site, Savannah River Site, Oak Ridge Site, Rocky Flats Environmental Technology Site, Pantex Plant, Idaho National Engineering and Environmental Laboratory, Fernald Environmental Management Project/Mound Plant, Sandia/Los Alamos National Laboratories, and Lawrence Livermore National Laboratory. To date, a total of 33 public meetings have been held at or near DOE sites and 39 in Washington, D.C. The records of these meetings are made available to the public.

## 1.2 SAFETY OVERSIGHT IN PRACTICE

Selected examples of the Board's contributions to public and worker health and safety, resulting from the practical application of the above safety oversight principles, include enhancing lightning protection for the Pantex Plant, implementing Integrated Safety Management Systems at all the defense nuclear sites, verifying safety at the Waste Isolation Pilot Plant (WIPP), stabilization of legacy nuclear materials, and preventing the introduction of suspect/counterfeit items into safety-related and mission-sensitive applications. A summary of each example follows:

- **Lightning Protection for Nuclear Explosive Operations at Pantex.** The Board has a unique role in overseeing the safety of operations in the DOE nuclear weapons complex. It includes oversight of such vital national activities at the Pantex Plant as the assembly, disassembly, and surveillance of nuclear weapons. Threats to the safety of these activities are a major focus of the Board's reviews.

Following several reviews at Pantex, the Board concluded that the potential hazards from lightning to nuclear explosive operations had not been comprehensively and consistently addressed. In 1997, the Board requested that DOE prepare a comprehensive analysis of the hazards posed by lightning to nuclear explosive operations and the controls necessary to prevent and mitigate those hazards.

In response to this request, DOE and its contractor identified and installed a variety of protective measures to make nuclear explosive operations at Pantex less vulnerable to lightning-induced damage. These included electrical bonding of metallic penetrations, installing surge protectors on electrical lines entering bays and cells, certifying transportation carts that are effective in mitigating lightning hazards during movement of nuclear explosives, and establishing isolation requirements to prevent electrical energy from being inadvertently applied to explosive circuits. Taken together, these enhancements represent a significant improvement to the safety of nuclear explosive operations at Pantex. The Board is continuing to review this important issue, emphasizing the completion of facility modifications and the development and implementation of improved administrative controls.

- **Implementing Integrated Safety Management Systems.** Every Secretary of Energy with whom the Board has interacted since 1989 has stressed the importance of performing DOE's missions safely. However, with respect to defense nuclear facilities under the Board's oversight jurisdiction, the Board observed that DOE's programs for achieving this objective had been marked by (1) the uncoupling of work planning and safety planning; (2) the development of separate protective programs for the public, for workers, and for the environment; and (3) the use of separate programs for nuclear safety and for chemical safety (hazardous and toxic materials).

Given that the source of the hazards that all these programs are intended to address is frequently the same, addressing those hazards in an integrated way appeared to offer substantial benefit. Toward that end, the Board recommended in 1995 (Recommendation 95-2, *Safety Management*) a restructuring of DOE's safety management program to provide a more effective and integrated way for DOE to discharge its responsibilities for protecting the public, workers, and the environment.

Secretary of Energy Hazel O'Leary accepted the Board's Recommendation 95-2. Her successor, Secretary Peña, reaffirmed DOE's commitment to the Integrated Safety Management (ISM) concept and made implementation of the concept a requirement for all DOE's hazardous activities, nuclear and otherwise. In October 1998, Secretary Richardson reinforced these earlier initiatives and committed to having ISM fully implemented at all DOE facilities by September 2000.

The Board's work with DOE and its contractors has led to substantial progress in upgrading DOE directives, institutionalizing and implementing ISM at facilities in the complex, and establishing specific sets of safety control measures (authorization agreements) for work in facilities across the DOE complex. Currently, authorization agreements for 50 defense nuclear facilities have been approved.

- **Waste Isolation Pilot Plant.** The Board has been instrumental in expediting the safe startup and operation of the Waste Isolation Pilot Plant (WIPP), a geologic repository for the disposal of defense transuranic (TRU) nuclear wastes. The Board and its staff began reviewing the design and operational safety of WIPP in 1990, and stepped up these

activities in late 1998 as WIPP made final preparations to begin to receive wastes. In addition to reviewing WIPP's readiness to operate, the Board also evaluated DOE's waste characterization and certification audit process to ensure that wastes destined for WIPP would be appropriately characterized and packaged at the generating sites. Based on these reviews and evaluations, the Board concluded that WIPP could be operated safely, and reported this conclusion to the Secretary of Energy in a June 3, 1998 letter.

Opponents of WIPP had filed two lawsuits seeking to prevent or delay the receipt of wastes. At the request of DOE and the Department of Justice (DOJ), the Board prepared a declaration stating its conclusion on WIPP's safety posture and describing the bases for that conclusion. That declaration summarized the numerous reviews at WIPP by the Board and its staff dating back to 1990 and resulting conclusions on various technical issues such as underground room stability and TRU waste packaging and transporter safety. In addition, it described WIPP's recent conduct of successful operational readiness reviews and development of an Integrated Safety Management System in response to the Board's recommendations. Finally, and perhaps most significantly, the declaration emphasized the importance to national public health and safety of properly disposing at WIPP the quantities of TRU wastes, currently in temporary storage at the various defense nuclear sites across the nation. DOJ submitted the Board's declaration along with its pleadings for one of the suits and DOE subsequently received a favorable ruling in this suit. In addition, members of the Board's technical and legal staffs briefed the New Mexico Attorney General on safety matters within the Board's purview at WIPP, and the Board's position on these matters. The Attorney General subsequently withdrew as a party to the second suit, which the judge then decided in DOE's favor, removing the final legal and administrative roadblocks to WIPP startup.

- **Stabilization of Legacy Nuclear Materials.** During the era of active weapons production, plutonium and other weapon materials were in demand as feed materials, and plutonium-rich scrap from weapons fabrication processes was quickly recycled. This situation changed dramatically starting in 1989, as DOE began to shut down weapon production activities at many defense nuclear facilities. Substantial quantities of plutonium, uranium, and irradiated fuel remained in temporary storage not considered safe for long periods of time. To rectify this situation, the Board issued Recommendation 94-1 in May 1994, which recommended that these materials be treated on an accelerated basis to convert them to stable forms and then packaged for safe interim storage.

Significant risk reduction and material stabilization has been accomplished under the Recommendation 94-1 program. By the end of 1998, much of the plutonium solutions and residues, special isotopes, and irradiated fuel and targets had been stabilized. However, stabilization of plutonium metals and oxides, uranium solutions, and the Hanford Site's large inventory of spent nuclear fuel had not yet begun. Additionally, substantial quantities of americium, curium, and neptunium at the Savannah River Site remained to be stabilized. It was apparent that the plan for most of the remaining stabilization activities was outdated, and the Board accordingly requested DOE to develop a revised implementation plan. During the preparation of this revision, the



Board raised many questions as to the impact of proposed changes and the need for effective compensatory measures to ensure that unavoidable delays could be safely accommodated. Only after sustained, intensive interaction by the Board and its staff did the issues get addressed and resolved. A revised implementation plan for Recommendation 94-1 was issued by the Secretary of Energy in December 1998, providing plans and commitment dates for completing the remaining stabilization activities, an assessment of safety risks associated with delayed stabilization activities, and compensatory measures being taken to minimize the risk.

During the past year, the Board and its staff have been closely following and noting further slippage in the timetable for meeting the dates set forth in that revised plan. While much has been accomplished in meeting the safety objective reflected in Recommendation 94-1, particularly with regard to those materials that constitute the most imminent hazards, the Board remained concerned that severe problems continued to exist which delayed the implementation of this Recommendation. Consequently, on January 14, 2000, the Board issued Recommendation 2000-1 to address these problems.

- **Suspect/Counterfeit Parts.** In 1995, the Board's staff discovered a substantial deterioration in DOE's programs to prevent the introduction of suspect/counterfeit items into safety-related and mission-sensitive applications. The Board initiated several actions to correct the programmatic and operational deficiencies: the staff alerted the appropriate DOE internal auditing and oversight elements (the Inspector General and safety oversight office) and the several DOE program offices (Defense Programs; Environmental Management; Environment, Safety and Health). The staff also undertook initiatives to independently determine health and safety implications resulting from the introduction of suspect/counterfeit items into defense nuclear facilities and mission-sensitive applications. These efforts prompted the Under Secretary of Energy to form a Quality Assurance Working Group (QAWG) in order to restore DOE's quality assurance programs and DOE's ability to defend missions from suspect/counterfeit and non-conforming parts.

In 1996, Department of Defense (DOD) investigators notified DOE that a vendor of semiconductor devices for high-reliability applications supplied DOE with potentially nonconforming parts. DOE uses of the nonconforming parts included significant national security and mission-sensitive applications. Notwithstanding repeated assurances from the QAWG that a formal notification to DOE elements was imminent, DOE did not notify field elements until the Board brought the problem to the attention of the Under Secretary of Energy. DOE subsequently took effective actions to evaluate the adequacy of the parts and provide assurance that the potential nonconformances would not compromise safety.

In 1997 and 1999, DOD investigators again notified DOE that vendors had supplied DOE with nonconforming parts for national security or safety-related applications. Actions by the Board's staff were necessary to ensure that DOE took timely actions.

The Board continues to provide oversight and technical assistance to help control and assess the health and safety effects of possible introduction of suspect/counterfeit items into mission critical and safety-related applications. As a result of actions by the Board, the QAWG is formalizing practices and lessons learned to update and strengthen the DOE quality assurance program. The Board's oversight and timely intervention in dealing with suspect/counterfeit items were pivotal in energizing the reestablishment of DOE's quality assurance programs, vital to ensuring public health and safety at defense nuclear facilities.

### **1.3 FUTURE SAFETY OVERSIGHT CHALLENGES**

The following examples discuss some of the upcoming challenges facing the Board in its safety oversight of the Department of Energy (DOE) that will require additional resources:

- DOE is committed to numerous new design and construction projects over the next decade to provide nuclear weapons stockpile support to this vital national security component and to resolve the remaining health and safety issues that are the historical legacy of weapons production. One example is the Tritium Extraction Facility at the Savannah River Site. The Board is required by statute to review design efforts, construction activities, and the initial operation of new defense nuclear facilities, and to make timely recommendations on any needed public health and safety improvements to the Secretary of Energy. This significant projected increase in workload in the design and construction area will require the Board to augment its technical staff in areas such as design, safety analysis, and operations.
- To maximize the efficient use of its resources in direct support of the nuclear weapons stockpile, DOE is developing a strategy that will change the balance and location of some defense nuclear work throughout the complex. As this strategy is implemented, some sites that have seen lesser amounts of nuclear work in recent years (such as the Lawrence Livermore National Laboratory and the Nevada Test Site) will be required to significantly increase tempo. Safely implementing the transfer of hazardous defense nuclear activities between sites—with the associated need to assure competent personnel, rigorous authorization basis control, and effective operational safety management—will represent many challenges for DOE and its contractors, as well as associated oversight challenges for the Board.
- The Board's oversight continues to identify technical issues that have the potential for significantly impacting the safety of nuclear weapon stockpile management activities. For example, at the Board's urging, DOE determined the real threat that lightning presents to nuclear weapons handling operations at the Pantex Plant, and is working to implement appropriate compensatory measures. DOE still must extend these lessons learned to the Nevada Test Site and other defense nuclear sites. This effort will require additional Board resources.

- DOE, in cooperation with the Department of Defense, is progressing toward defining the research, development, and manufacturing infrastructure that will be necessary to support the enduring stockpile in the absence of nuclear testing. For example, tritium extraction for stockpile use, conduct of nuclear experimentation, and preservation of the strategic pit inventory, will require the Board to oversee the operation of new defense nuclear activities throughout the next decade and beyond. In addition, DOE is ramping up its programs to extend the life of weapons in the enduring stockpile. These life extension programs will require more complex operations than the current dismantlement campaigns, since they involve disassembly as well as reassembly and recertification of large numbers of stockpile weapons. To effectively oversee these operations and, at the same time, strike the correct balance between national security requirements/schedules and safety management issues, the Board will need to substantially augment its technical staff with individuals who possess the necessary expertise.
- The Rocky Flats Environmental Technology Site will be the first large-scale defense nuclear site to face total deactivation. This site is currently scheduled to remove all nuclear materials by 2006. The Board will need to closely oversee the progress of Rocky Flats toward deactivation, since the experience gained there can provide a model for the considerable number of excess facilities in the DOE complex. The mission to conduct high-risk facility deactivation activities will continue across the DOE defense nuclear complex at an increasing rate in coming years. These activities involve hands-on, hazardous work requiring hazard evaluation, development of work controls and procedures, worker training, and conduct of operations. Increased Board attention and resources will be required to ensure that DOE safely conducts these high-risk activities.
- Since the end of the Cold War, maintenance of the technical competence (federal, laboratory, and contractor) essential to DOE's defense nuclear mission has been an increasingly difficult task. While the Board has always placed considerable emphasis on this vital safety management component, skilled employees continue to leave the workforce. Implementation of reorganization initiatives at DOE will require that close attention be paid to the preservation of appropriate technical skills, abilities, and experience. The Board will need additional resources to ensure that DOE maintains and develops required technical capabilities and that the new line management emphasizes safety in the conduct of its operations.
- In response to the Board's urging and guidance, DOE has made considerable progress developing programmatic direction for an integrated safety management approach to its hazardous nuclear activities; the Secretary of Energy has committed to complex-wide implementation by the beginning of FY 2001. However, observations indicate that extensive experience, feedback, and improvement will be required before effective implementation of integrated safety management and its associated cultural changes are fully realized across

the entire DOE weapons complex. The current rate of progress also may be challenged by the possible transition of several major contracts for defense nuclear site management, with the associated need to identify new sets of enforceable contractual health and safety requirements. The Board will need to increase its oversight efforts of the new contractors to ensure that the integrated safety management gains already achieved are continued.

- After considerable oversight and constructive engagement by the Board, the DOE is currently in a peak activity period for disposition of the hazardous remnants of the nuclear weapons production enterprise. The Waste Isolation Pilot Project is in operation, and the other defense sites are initiating new programs to qualify waste for acceptance and transport to that storage facility. In addition, real progress is being made to characterize, stabilize, and disposition high hazard nuclear materials, and several associated new facilities are either in design, construction, or initial operation. The Board's oversight efforts in this important risk reduction arena will need to be increased to keep pace with these new and inherently hazardous activities.

The Board's work in these anticipated new activities is essential to the fulfillment of its mission. The work is considered additional in the sense that the Board's resources are already fully committed to existing safety activities and this new work cannot be accommodated within the existing budget. The new work cannot be deferred or eliminated without severely impacting the Board's mission as required by Congress. The Board's continued work in these areas is assumed in its strategic planning. However, the Board believes that these new (additional) tasks substantially exceed the Board's current capabilities even after full consideration is given to reprioritizing its work. The Board will require additional and varied safety expertise to deal with the changing and expanding scope and nature of DOE's planned work.

## 1.4 CONCLUSION

In establishing the Board, Congress and the President intended that the Board assure and improve the safety of operations of DOE's defense nuclear facilities by providing independent, expert advice to the Secretary of Energy, identifying the nature and consequences of any significant potential threats to public health and safety, and elevating such issues to the highest levels of authority.

The positive impact of the Board's independent oversight on the DOE defense nuclear complex has become increasingly evident. During FY 1999, a number of DOE risk reduction actions and safety management upgrades resulting from Board initiatives, some initiated in previous years, were completed or advanced significantly.

The five Board Members, together with a small but extremely competent workforce, provide a cost-effective organizational arrangement for achieving the added safety assurance that the public seeks. Our budget request of \$18.5 million, to be used for staff salaries and required overhead expenses such as travel to the DOE weapons sites, provides the funding needed to support the Board's health and safety review actions planned for FY 2001.

A federal commitment of \$18.5 million to support the Board's oversight operations in FY 2001 is a wise investment in the improved safety and security of our Nation, and pales in comparison to the potential economic and health costs of a nuclear accident in a defense nuclear facility.

## **2. MISSION & STRATEGIC PLANNING GOALS SUMMARY**

### **2.1 THE DOE DEFENSE NUCLEAR COMPLEX TODAY**

Numerous radioactive and toxic materials exist throughout the defense nuclear complex, and there are many pathways by which these hazards might be released, creating risks to workers, the public, and the environment. The integrity of facilities or structures that confine hazardous materials can be threatened by earthquakes, extreme winds, floods, lightning, and other such natural phenomena. Other potential release mechanisms include operator errors, equipment malfunctions, chemical reactions, fire, ignition of explosives, and inadvertent nuclear criticality events. If these hazards and their potential release mechanisms are not carefully addressed, the consequences of a resulting accident could include exposure to unacceptable radiation levels, uptake of radioactive materials, other serious compromise of the health and safety of the public and onsite workers, and unacceptable environmental impact.

The Board conducts its oversight of DOE so as to reduce the risks that exist in the defense nuclear complex to the greatest extent possible. Examples of those risks include:

- Hundreds of tons of fissionable material, in various forms, housed in 50-year-old buildings and structures.
- Thousands of nuclear weapons being dismantled, evaluated, or modified.
- Hundreds of tons of plutonium, including components from dismantled nuclear weapons.
- The nation's strategic inventory of tritium gas, including thousands of individual containers removed from nuclear weapons.
- Thousands of tons of deteriorating nuclear fuel in water-filled storage basins.
- More than one hundred million gallons of high-level radioactive waste awaiting treatment.

### **2.2 GENERAL GOALS**

With its broad health and safety oversight mission as defined by statute, the Board has developed three general outcome goals that describe the intended result, effect, or consequence that will occur as a direct result of its oversight activities. Using its action-forcing powers, the Board seeks to effect the following outcomes:

1. **Complex-Wide Health and Safety Issues.** Integrated safety management<sup>2</sup> (including comprehensive health and safety requirements, technically competent personnel, and effective implementing mechanisms) continues to evolve through feedback and improvement, and is implemented in all life cycle phases—design and construction, startup, operation, and decommissioning.
2. **Safe Stewardship of Nuclear Weapons Stockpile and Components.** Nuclear weapons stockpile support and defense nuclear research activities continue to be planned and executed safely at DOE's defense nuclear facilities.
3. **Safe Disposition of Hazardous Remnants of Weapons Production.** Hazardous remnants of nuclear weapons production are appropriately characterized, stabilized, and stored; and legacy facilities are decommissioned in a manner that protects the worker, the public, and the environment.

These outcome goals serve as the primary drivers for all Board health and safety oversight activities planned for FY 2000, FY 2001 and beyond. The Board focuses its actions on those activities and facilities that have reached a development stage that is best suited to constructive safety oversight, and on those operations where safety improvements have the greatest potential for risk reduction. The Board's independent oversight activities often reveal safety concerns that have not received attention by the DOE that is commensurate with the threat posed to the workers, the public, or the environment.

### 2.3 NATURE OF THE BOARD'S WORK

The mission of the Board is to oversee the safety of DOE's defense nuclear facilities with the objective of helping to protect the health and safety of the public and workers. The Board assists DOE in identifying health and safety problems at defense nuclear facilities so that they can be corrected, and then confirms that the resulting corrective actions are appropriately implemented. The Board stays closely attuned to the planning and execution of DOE's defense nuclear programs, gathering its information from a broad range of sources, including but not limited to:

- on-site technical evaluations by the Board and its staff,
- critical review of DOE safety analyses by competent technical experts,
- public meetings in the field and at the Board's headquarters, and

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<sup>2</sup> 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.

- daily input from the Board's Site Representatives assigned to the highest priority defense nuclear facilities.

The Board focuses primarily on defense nuclear facilities and activities at the following 13 defense nuclear complex sites across the United States:

- |   |   |
|---|---|
| ● Fernald Plant, Ohio                                     | ● Nevada Test Site  |
| ● Hanford Site, Washington State                          | ● Oak Ridge Reservation, Tennessee                        |
| ● Idaho National Engineering and Environmental Laboratory | ● Pantex Plant, Texas                                     |
| ● Lawrence Livermore National Laboratory, California      | ● Rocky Flats Environmental Technology Site, Colorado     |
| ● Miamisburg Environmental Management Project, Ohio       | ● Sandia National Laboratories, New Mexico and California |
| ● Los Alamos National Laboratory, New Mexico              | ● Savannah River Site, South Carolina                     |
|   | ● Waste Isolation Pilot Plant, New Mexico                 |

At these sites, the Board has identified 53 defense nuclear facilities that present the greatest health and safety risk. These facilities receive regular oversight attention and are the focus of a majority of the Board's technical resources; activities at lower-risk facilities receive less intensive oversight. The Board has deployed members of its technical staff as full-time Site Representatives at some of the high priority sites (currently at Hanford, Oak Ridge, Pantex, Rocky Flats, and Savannah River) to provide continuous on-site oversight. The Board also encourages DOE to implement fundamental safety upgrades that can have positive health and safety impacts throughout the defense nuclear complex.

The scheduling and conduct by the Board and its staff of its independent on-site technical evaluations, reviews, and observations frequently catalyze the DOE to begin identifying and correcting safety deficiencies. While, as noted above, the Board has optimized its resources by assigning Site Representatives to high priority defense nuclear sites, extensive travel by the Board and its Headquarters technical staff to defense nuclear facilities is still essential for the Board to accomplish its safety oversight mission.

So as to remain better informed on DOE's activities and initiatives, the Board also receives regular briefings by senior DOE officials. Information received by the Board in these briefings is used to understand how much progress is being made on safety matters and to gauge DOE's commitment to achieving real progress.

Based on the information gained, the Board chooses from the broad spectrum of action-forcing mechanisms granted to it by law to formally communicate identified concerns and promote appropriate DOE corrective action. These action-forcing mechanisms include Recommendations to the Secretary of Energy and to the President in the case of an imminent threat to public health and safety, requests for reports from the DOE, public meetings or hearings, technical exchanges and issuance of technical reports, investigations, and testimony to Congressional Committees. In addition, the Board often transmits issue reports prepared by the



Board's staff to the DOE, thereby sharing the staff's observations and findings. The Board has found that calling DOE's attention to the important findings in these reports is often sufficient to lead to responsive corrective action by DOE's management. The public may view these communications with DOE by accessing the Board's Internet Home Page at [www.dnfsb.gov](http://www.dnfsb.gov). After a safety concern is identified and communicated to DOE, the Board and its staff ensure that appropriate corrective actions are developed by DOE and its contractors, commitments are made to implement these corrective actions in a timely manner, and that these commitments are met.

Individual Board Members and the Board's staff may also engage in direct technical dialogue with the DOE and its contractors on specific safety concerns, and may participate in technical workshops and conferences where information relevant to safety improvement and risk reduction is exchanged. The Board has directed its senior staff members to meet frequently with their DOE counterparts to ensure that the staff is able to brief the Board on the status of safety issues and programs and on key safety questions, and that the DOE understands the Board's safety objectives and initiatives. This type of direct interaction conserves federal resources by ensuring that the DOE and the Board understand each other's positions in depth. This understanding, in turn, permits the Board to focus its Recommendations, letters, requests for information, and public meetings and hearings on the most important health and safety issues to be resolved. It averts the waste of resources of both the DOE and the Board on false starts and contention over easily resolved side-issues. In many cases, the simple exchange of ideas is sufficient to motivate the DOE to take appropriate actions without the Board's having to make formal Recommendations.

In addition to the wide scope of the Board's communications with DOE, the Board has exchanged information with other government agencies (e.g., Nuclear Regulatory Commission, the General Accounting Office, the Department of Defense, and the Environmental Protection Agency), as well as outside agencies (e.g., National Research Council and the National Academy for Public Administration). Such meetings serve to share knowledge, experiences, and factual information on matters of mutual interest with regard to the safety of the DOE defense nuclear facilities.

The Board remains committed to this policy of enhanced communication in the belief that in the end, safety is best served by spending federal dollars on real improvements at defense nuclear facilities, not on correspondence. Direct communication and discussions with the DOE in an open forum have proved to be powerful, cost-effective tools in advancing the Board's nuclear safety initiatives. The Board has held a total of 72 public meetings in both Headquarters and field locations, each of which involved substantive interchanges with senior DOE officials.

## **2.4 KEY EXTERNAL FACTORS AND PLANNING ASSUMPTIONS**

The mission of the DOE defense nuclear complex has changed significantly since the Board's establishment, and will continue to evolve. The Board identifies and addresses fundamental and complex-wide safety management deficiencies, which are generally not

impacted by DOE's changing mission. The Board also focuses its safety oversight on technical issues associated with mission-specific operations, which change as DOE's mission shifts. A major accident or safety-significant event at a DOE facility involving special nuclear material would also dictate significant changes in priority and focus. In addition, the Board will continue to identify previously unrecognized safety concerns, which DOE will need to address. National security requirements may also change.

During each annual performance reporting period, it is anticipated that DOE's mission and associated schedules for major actions will continue to change. As these changes occur, the Board will redeploy its resources and modify some of its strategic and performance planning targets accordingly. The specified facility or activity on which a performance plan action is focused may change; however, the same (or an increased) level of performance and output should be achieved, in support of the general outcome goals.

The Board's Strategic Plan was prepared with the acknowledgment of this potential for rapid change in the complex under its oversight purview. To focus the plan to the greatest extent possible, the Board highlighted certain planning assumptions that underlie its current prioritization of activities.

- There is no major accident or safety-significant event at a DOE facility involving special nuclear material.
- There are no changes to DOE's schedule for major actions in the defense nuclear complex based on circumstances within or beyond its control, which would require a corresponding change in the Board's oversight plan.
- Current U.S. national security policy affecting DOE nuclear weapons stockpile stewardship and management remains unchanged.
- The Administration maintains its moratorium on the underground testing of nuclear weapons. Resumption of full-scale underground testing would require a major shift in the Board's resources for oversight.
- DOE's commitment and approach toward the stabilization of hazardous legacy materials and cleanup of contaminated defense nuclear facilities remain consistent with the current approach, as defined in the DOE Strategic Plan for FY 1997 - FY 2002.
- The Board's current statutory authority and responsibilities in the DOE defense nuclear complex remain unchanged.

### 3. ANNUAL PERFORMANCE PLANS FOR FY 2000 AND FY 2001

#### 3.0 INTRODUCTION

The Board's original Strategic Plan, issued in 1997, proved to be effective in practice as a framework for managing technical efforts. However, the Board and its technical leadership found that the original plan's level of complexity dictated a degree of unique record-keeping for performance tracking that was unnecessarily burdensome for a small agency. The Board determined that a streamlined strategic and performance planning approach could retain the original intent and direction of the initial Strategic Plan, while reducing performance tracking requirements to a set that is more in keeping with the Board's small size and single program activity. As a result, in July 1999 the Board advanced the schedule for the periodic update of its Strategic Plan, as encouraged by the guidance provided by the Office of Management and Budget (OMB). The Performance Plan for FY 2000, as presented in this Budget Request, is structured in accordance with the Board's updated Strategic Plan.

As outlined in Section 2.2 of this Budget Request, the Board's statutory mission is logically divided along the lines established by the three general goals:

- 1. Complex-Wide Health and Safety Issues.** Integrated safety management (including comprehensive health and safety requirements, technically competent personnel, and effective implementing mechanisms) continues to evolve through feedback and improvement, and is implemented in all life cycle phases—design and construction, startup, operation, and decommissioning.
- 2. Safe Stewardship of Nuclear Weapons Stockpile and Components.** Nuclear weapons stockpile support and defense nuclear research activities continue to be planned and executed safely at DOE's defense nuclear facilities.
- 3. Safe Disposition of Hazardous Remnants of Weapons Production.** Hazardous remnants of nuclear weapons production are appropriately characterized, stabilized, and stored; and legacy facilities are decommissioned in a manner that protects the worker, the public, and the environment.

The Board's Strategic Plan establishes the framework for making management decisions, and describes what the Board plans to do each year to progress toward achievement of each of these three general goals. In planning its work, the Board and its staff have developed a set of seven strategic objectives that, in aggregate, implement the Board's general goals. The relationship between these goals and objectives is discussed in the Board's Strategic Plan.

To facilitate strategic management, the Board has organized its technical staff into three technical groups. The technical lead of each group is assigned responsibility for one of the three general goals in the Strategic Plan, and for executing the strategic objectives associated with that goal. As required by the OMB guidance governing compliance with the Government Performance and Results Act, the Board and its technical leadership have produced measurable performance goals for FY 2000 and FY 2001 that, when executed, will demonstrate progress toward the Board's strategic objectives, and consequently toward its general goals. These annual performance goals and measures establish projected levels of performance and reflect the nature of the Board's independent oversight function.

All of the Board's general goals and strategic objectives outlined in its Strategic Plan address multi-year efforts and encompass a broad spectrum of technical areas relevant to the safety of DOE's defense nuclear mission. The Board's Annual Performance Plans for FY 2000 and FY 2001, in the pages that follow, identify an annual performance goal for each strategic objective that consists of a specific number of reviews to be conducted in support of that objective, 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. Each Annual Performance Report will provide a qualitative assessment of the outcome associated with each annual performance goal.

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

- DOE's acknowledgment that a safety enhancement is needed, after the Board communicates the results of its technical reviews.
- DOE's subsequent development of appropriate corrective actions to resolve the Board-identified safety issue.
- 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, worker, or environment.

The basis of measurement for the qualitative assessment will be formal correspondence of DOE and its defense nuclear contractors, Board correspondence, staff reports, DOE and contractor public testimony, and other sources. Past reporting experience, developed over the last nine years of reporting progress to Congress in the Board's Annual Reports, has shown that it should be possible to conduct a retrospective assessment of Board-identified issues and associated DOE responses to demonstrate that the Board has had a clear and positive impact on the safety culture within DOE.

Because of the variability of DOE's plans and schedules, some candidate areas identified in the Board's Annual Performance Plans may not be addressed during a performance period. However, the Board's Annual Performance Report will document that an equivalent level of

effort was expended in support of the strategic objective, and describe the alternate candidate that was selected for review.

To facilitate an integrated review, the sections below are formatted to show the flow-through from strategic objectives to annual performance goals for FY 2000 and FY 2001. To place this planning information in context, the tables also provide examples of the Board's related FY 1999 accomplishments, as required by OMB's guidance on Performance Plans. These examples do not represent the entire scope of progress made on the FY 1999 performance goals—a comprehensive assessment will be provided in the Board's Annual Performance Report for FY 1999.

## 3.1 COMPLEX-WIDE HEALTH AND SAFETY ISSUES

### 3.1.1 Overview

The objectives and annual performance goals in support of the Board's first general goal address the agency's efforts to facilitate the complex-wide implementation of integrated safety management throughout the DOE defense nuclear complex. Achievement of this goal will require a multi-year, multi-site, multi-focus effort by the Board during each annual performance period. The Board's three strategic objectives that support Goal 1 encompass a broad spectrum of technical areas relevant to the safety of DOE's defense nuclear mission.

The elements of the integrated safety management approach include (1) a strong foundation of comprehensive health and safety requirements and guidance promulgated through DOE's directive system, (2) assurance that federal and contractor personnel have the technical competence necessary to execute their responsibilities, and (3) development and implementation of effective safety management mechanisms throughout all portions of a facility's life cycle. The Board focuses attention on DOE's progress in all of these complex-wide areas, seeking to identify additional means by which full and effective implementation of integrated safety management can be expedited.

The Board's Strategic Plan identifies three specific objectives that it intends to pursue to ensure that DOE performs its defense nuclear mission safely. They are:

- 1-A: Improvement and Integration of Health and Safety Directives.** The Board and its staff will verify that new and revised DOE directives contain adequate requirements for the protection of the health and safety of the workers and the public.
- 1-B: Technical Competence.** The Board and its staff will verify that the 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.
- 1-C: Complex-Wide Implementation of Integrated Safety Management.** The Board and its staff will verify the effective and expeditious development and implementation of DOE's integrated safety management in facility design and construction, operation, and post-operation.

The Board believes that specific actions currently planned for FY 2000 and FY 2001 to advance each of these objectives are possible and desirable. These actions, which are specified in the following tables, build on the Board's activities and accomplishments of past years in technically rigorous oversight and constructive interaction with the DOE. Examples of related FY 1999 performance accomplishments that have supported the Board's objectives are also provided in the following tables. All such activities and accomplishments have been publicly identified in documents such as the Board's Annual Reports, letters, technical reports, and

previous budget requests. The Board's actions described in the following tables are also based on its assessment of progress expected in FY 2000 and on major DOE efforts planned during FY 2001, which in turn are predicated on many factors, most importantly, the DOE budget and its accomplishments during this period.

### **3.1.2 Adjustments to the FY 2000 Performance Goals**

The Board's FY 1999 Performance Plan preliminarily identified 12 specific FY 2000 annual performance goals in support of this General Goal and its associated objectives. This modified FY 2000 Performance Plan, written in accordance with the structure of the Board's updated Strategic Plan, captures all of the areas of focus previously identified for FY 2000 within three broader-scope annual performance goals that have, collectively, 17 primary reviews.

The primary external factors that may drive mid-year modifications to the annual performance goals outlined in the following tables are of three types:

- Changes in functional area focus for DOE's directives upgrade program;
- Delays in the schedules for design and construction projects; and
- Slower progress than committed to by the DOE in the implementation of integrated safety management systems.

**COMPLEX-WIDE HEALTH AND SAFETY ISSUES**

**Objective 1-A:** Improvement and Integration of Health and Safety Directives. The Board and its staff will verify that new and revised DOE directives contain adequate requirements for the protection of the health and safety of the workers and the public.

Examples of FY 1999 Accomplishments	FY 2000 Performance Goals	FY 2001 Performance Goals
<p>The Board and its staff provided substantive comments to DOE during the review process for three health and safety directives associated with deactivation and decommissioning. After successfully resolving the Board's comments, DOE updated one of these directives. At years end, both staffs were completing resolution of issues in the two remaining directives to improve content, clarity, and consistency of the guidance.</p> <p>The Board's staff provided comments on thirteen draft implementation guides associated with 10 CFR 835, <i>Occupational Radiation Protection</i>, DOE-STD-1098-99, <i>Radiological Control Standard</i>, and two handbooks associated with the DOE radiological protection program. The staff then worked with the DOE staff to resolve the identified areas of needed improvement. By year's end, DOE had issued all thirteen implementation guides and both handbooks, and had sent the standard to the DOE Technical Standards Program for publication. These actions resulted in clarifying and strengthening DOE's guidance for this important safety management function.</p> <p>The Board provided comments to DOE on a new guide on management of Quality Assurance, a new qualification standard for individuals engaged in criticality safety studies, and a new handbook addressing design considerations, all three of which are explicitly associated with integrated safety management. Through significant interaction between the Board's staff and their DOE counterparts, significant improvements in the content and clarity of the directives were achieved.</p>	<p>The Board and its staff will review and assess the adequacy of health and safety requirements in new directives and rules, as well as in specific DOE directives that may be revised as a result of DOE's two-year review cycle. Results are communicated to DOE by the Board or its staff for incorporation or resolution, as appropriate.</p> <p>It is estimated that DOE will issue a minimum of 40 directives for review by the Board and its staff in FY 2000. Based on experience from FY 1999, it is expected that approximately 3 of these reviews will be of major significance, and, as such, will require substantial Board and staff interaction with DOE to satisfactorily resolve identified issues prior to finalization.</p> <p>The Board will place particular emphasis on encouraging DOE to develop necessary new directives and to improve, consolidate, and integrate existing directives and rules related to health and safety in the following areas:</p> <ul style="list-style-type: none"> <li>• Integrated safety management, including requirements selection, feedback and improvement, and performance measures,</li> <li>• Project management and systems engineering throughout the full facility life cycle, and</li> <li>• Hazard Analysis Reports for nuclear explosive operations.</li> </ul> <p>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.</p>	<p>The Board and its staff will review and assess the adequacy of health and safety requirements in new directives and rules, as well as in specific DOE directives that may be revised as a result of DOE's two-year review cycle. Results are communicated to DOE by the Board or its staff for incorporation or resolution, as appropriate.</p> <p>It is estimated that DOE will issue a minimum of 40 directives for review by the Board and its staff in FY 2001. Based on experience from FY 1999, it is expected that approximately 3 of these reviews will be of major significance, and, as such, will require substantial Board and staff interaction with DOE to satisfactorily resolve identified issues prior to finalization.</p> <p>The Board will place particular emphasis on encouraging DOE to develop necessary new directives and to improve, consolidate, and integrate existing directives and rules related to health and safety in the following areas:</p> <ul style="list-style-type: none"> <li>• Effective conduct of hazardous facility, site and complex-wide projects and programs, including roles, responsibilities, competencies, mechanisms, and training, and</li> <li>• Additional adequate performance measures for determining effectiveness of site integrated safety management programs.</li> </ul> <p>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.</p>



**COMPLEX-WIDE HEALTH AND SAFETY ISSUES**

**Objective 1-B:**

**Technical Competence.** The Board and its staff 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.

Examples of FY 1999 Accomplishments	FY 2000 Performance Goals	FY 2001 Performance Goals
<p>The Board continued to focus DOE's attention on the technical competence of federal workers as an essential safety element for defense nuclear facilities. Through a revised Implementation Plan for Board Recommendation 93-3, <i>Improving DOE Technical Capability in Defense Nuclear Facilities Programs</i>, DOE formed a panel of senior line managers to ensure successful implementation of a corporate program to recruit, develop, deploy, and retain technical capability at defense nuclear facilities. The panel members self-assessed the Technical Qualification Programs at their respective sites, and took the necessary actions to upgrade their plans and procedures. The panel also identified 686 critical technical positions and took administrative actions to preserve nearly all of these positions against any future downsizing.</p> <p>Significant accomplishments were made by DOE as a result of implementing Board Recommendation 97-2, <i>Criticality Safety</i>. Training and qualification programs for both DOE and contractor criticality engineers were established including high quality qualification standards. The operation of the Los Alamos National Laboratory critical facility was revamped for training of criticality safety engineers and for the development of intermediate range neutron energy data for critical assemblies. These activities provide vital information for understanding and characterizing the unique hazards and for developing proper safety controls related to nuclear criticality. Additionally, a web-site was developed for dissemination of archived data on the past 40 years of criticality experiments which will provide great benefit to the nuclear safety community.</p>	<p>The Board and staff will complete 8 assessments of DOE's efforts to:</p> <ul style="list-style-type: none"> <li>• Define roles and responsibilities assignments for safety management in Headquarters and the Field, including appropriate consideration of the associated FRAMs, for three DOE organizations (one Headquarters and two Field),</li> <li>• Periodically assess the effectiveness of the Federal Technical Capabilities Program for DOE employees,</li> <li>• Assure that competence is commensurate with assigned responsibilities for key safety management personnel in the field, including qualifications to perform criticality safety oversight, for two DOE Field Offices and two defense nuclear contractor organizations.</li> </ul> <p>Results of assessments will be communicated to DOE to enhance understanding of safety-related roles and responsibilities in support of DOE's execution of functions associated with protecting the worker and the public, and to be used by DOE to upgrade the quality of its technical workforce.</p>	<p>The Board and staff will conduct the following 5 assessments:</p> <ul style="list-style-type: none"> <li>• Review the status of implementation and institutionalization of the Federal Technical Capability Program ,</li> <li>• Assess whether competence is commensurate with assigned responsibilities for key safety management personnel at two defense nuclear contractor organizations as part of scheduled DOE and contractor readiness determinations, and</li> <li>• Evaluate DOE's 5-year plan to assure the continuation of a viable criticality safety program beyond the completion of programs uniquely identified in Recommendation 97-2 through reviews at two DOE sites.</li> </ul> <p>Results of assessments will be communicated to DOE to enhance understanding of safety-related roles and responsibilities in support of DOE's execution of functions associated with protecting the worker and the public, and to be used by DOE to upgrade the quality of its technical workforce.</p>

**COMPLEX-WIDE HEALTH AND SAFETY ISSUES**

**Objective 1-C:** Complex-Wide Implementation of Integrated Safety Management in Facility Design, Operation, and Post-Operation. The Board and its staff will verify the effective and expeditious development and implementation of DOE's integrated safety management (ISM) program.

Examples of FY 1999 Accomplishments	FY 2000 Performance Goals	FY 2001 Performance Goals	FY 2000/FY2001 Performance Measures
<p>Reviews by the Board and its staff identified shortcomings in the Hanford Spent Nuclear Fuel Project that included the continued lack of sound project management, despite several high level management changes; poor implementation of quality assurance requirements; and an inability to identify and resolve emerging technical issues in a timely manner. Continued Board and staff pressure through correspondence and face-to-face meetings has led to some progress on these concerns, but continuing attention is needed.</p> <p>Several key indicators for gauging progress in implementing ISM have been identified from the Board's reviews: Incorporation of ISM-related DEAR clauses into contracts, establishment of a mutually agreed-upon requirements base as the foundation for the ISM program, development of an ISM System description that describes how the contractor will integrate the system into work practices, performance of a DOE ISM verification review, and establishment of an authorization agreement. Each of these areas received Board attention in FY1999, not only at the 10 priority facilities called out in the Recommendation 95-2 DOE Implementation Plan but also in the 43 facilities designated in the Board's December 1997 letter as "follow-on" facilities. During the FY1999, DOE has worked to fully implement ISM at the Recommendation 95-2 priority facilities. The Board monitored and advised on the development of DEAR Clause-required ISM descriptions, which describe how the contractor will integrate ISM into work practices. To date, all sites with priority or follow-on facilities have had their ISM descriptions approved by DOE, except Los Alamos National Laboratory, Lawrence Livermore National Laboratory, and the Pantex Plant, which are scheduled for approval by the end of the year. The Board also urged DOE to continue its efforts to define and operate to explicit control measures at the priority facilities, and enlarge its efforts to include all high and moderate hazard defense nuclear facilities. In his March 1999, memorandum on Safety-Accountability and Performance, the Secretary of Energy committed to having ISM completely in place for all DOE facilities by September 2000.</p> <p>In response to the Board's March 20, 1998, reporting requirement on the DOE's Feedback and Improvement program, the Department committed to upgrading the DOE Lessons Learned process, including developing guidance on improving the complex-wide feedback and improvement programs. In addition, DOE recently published a revised DOE acquisition regulations that will hold a contractor's fee at risk in the event of poor safety performance. The Secretary of Energy's March 3, 1999, memorandum on Safety-Accountability and Performance tasked the newly established DOE Safety Council with developing performance standards that will be used to hold Federal personnel accountable for effective and timely ISM implementation. The Board is continuing to work closely with the DOE in this effort.</p> <p>The Board issued Recommendation 98-1 to address the internal independent oversight element of the feedback and improvement program that the Board felt was not being adequately addressed in the Department's feedback and improvement initiatives. The Board determined that DOE Headquarter's independent assessments of safety management of the field were treated largely as advisories and follow-up actions were become discretionary to lower levels of DOE line management. DOE accepted this Recommendation and provided an acceptable Implementation Plan, which addresses the Department's need for a clearly defined, systematic, and comprehensive process to address and resolve safety issues identified by internal independent oversight.</p>		<p>The Board and its staff will conduct at least 6 reviews of DOE's efforts to implement ISM throughout all facility life cycle phases. To support DOE's strategic objective to implement ISM complex-wide by the end of FY 2000, the Board will improve its communication effectiveness by consistently characterizing technical review results using standard ISM terminology. Candidates for review include:</p> <ul style="list-style-type: none"> <li>• Tritium Extraction Facility to be built at the Savannah River Site. These will include reviews of detailed process hazards studies, the quality assurance program for procurement of process equipment, the quality assurance program for construction, and a detailed structural review of the facility design prior to initiation of construction.</li> <li>• Other DOE design/construction activities, including technical project management, criteria development, design preparation, and construction. Selection for review will be based on relative hazards, and on DOE's schedule and progress on candidate facilities.</li> <li>• Hanford Spent Nuclear Fuel project, including reviews of hazards studies and Safety Analysis Reports, construction, equipment operational testing, procedures, and operator training in preparation for the start of fuel removal from the K-Basins in November 2000.</li> <li>• DOE's verification reviews of institutional-level ISM System implementation for those sites with facilities that were identified as top priority in DOE's Implementation Plan for Board Recommendation 95-2.</li> <li>• At least one of DOE's ISM System verification reviews conducted for a defense nuclear site identified as the next level of priority (e.g., Sandia National Laboratories, the Nevada Test Site, or Idaho National Engineering and Environmental Laboratory).</li> <li>• Authorization Agreements for Pantex Plant weapons activities, as well as selected Authorization Agreements for other defense nuclear facilities and activities.</li> </ul> <p>As a result of these reviews, DOE will provide an adequate approach and schedule for resolution of identified issues that supports safe start-up and operation of new or modified defense nuclear facilities.</p>	<p>The Board and its staff will conduct at least 5 reviews of DOE's efforts to implement ISM throughout all facility life cycle phases. Candidates for review include:</p> <ul style="list-style-type: none"> <li>• Tritium Extraction Facility at the Savannah River Site, including monitoring the start of construction activities.</li> <li>• Final preparations for the start of fuel removal from the Hanford Site's K-Basins will be reviewed by the Board and its staff, including monitoring the drying of the fuel and the sealing of the storage containers.</li> <li>• DOE's implementation of performance indicators that can provide accurate measurement of ISM implementation and performance, including review of applicable documents and contracts for evidence of performance measures linked to mechanisms for providing feedback information.</li> <li>• New design and construction projects, for the institutionalization of sound systems engineering practices to ensure that suitable processes are in place and functioning to utilize DOE's limited resources in a cost-effective manner without compromising the protection of workers, the public and the environment.</li> </ul> <p>As a result of these reviews, DOE will provide an adequate approach and schedule for resolution of identified issues that supports safe start-up and operation of new or modified defense nuclear facilities.</p> <p>Also, the implementation of ISM performance indicators will provide an accurate measure of the effectiveness of the site and facility ISM programs.</p>

## 3.2 SAFE STEWARDSHIP OF NUCLEAR WEAPONS STOCKPILE AND COMPONENTS

### 3.2.1 Overview

The objectives and annual performance goals in support of the Board's second general goal address the Board's efforts to support DOE's safe execution of its national security mission. Achievement of this goal will require the Board and its staff to evaluate DOE's work at multiple sites in direct support of the nuclear weapons stockpile, as well as associated research and development. Many of DOE's programs in this area do not yet have detailed schedules and milestones and will likely span multiple years. Correspondingly, the Board's oversight efforts will also be multi-year. The Board's two strategic objectives that support Goal 2 address the safe execution of various activities within DOE's two primary nuclear weapon mission components, direct support of the stockpile and nuclear weapon research and development activities.

Nuclear weapons continue to play an integral role in U.S. national security policy. By their nature, the operations to maintain a nuclear weapons stockpile involve hazards that, if not adequately controlled, could pose unacceptable consequences to the public and the workers. Therefore, DOE must ensure that the unique hazards associated with nuclear weapons and components are adequately controlled in a tailored, integrated safety management system. The Board will maintain safety oversight of DOE's nuclear weapons operations in fulfillment of national security objectives.

The Board's Strategic Plan identifies two specific objectives to improve the safety of operations involving DOE's nuclear weapons and nuclear weapon components:

- 2-A: Safe Conduct of Stockpile Management.** 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.
- 2-B: Safe Conduct of Stockpile Stewardship.** The Board and its staff will verify the safety of DOE's defense nuclear activities undertaken to ensure the continuing effectiveness of the nuclear weapon stockpile in the absence of underground nuclear testing.

The Board believes that specific actions currently planned for FY 2000 and FY 2001 to advance each of these objectives are possible and desirable. These actions, which are specified in the following tables, build on the Board's activities and accomplishments of past years in technically rigorous oversight and constructive interaction with the DOE. Examples of related FY 1999 performance accomplishments that have supported the Board's objectives are also provided in the following tables. All such activities and accomplishments have been publicly identified in documents such as the Board's Annual Reports, letters, technical reports, and previous budget requests. The Board's actions described in the following tables are also based on its assessment of progress expected in FY 2000 and on major DOE efforts planned during FY

2001, which in turn are predicated on many factors, most importantly, the DOE budget and its accomplishments during this period.

### **3.2.2 Adjustments to the FY 2000 Performance Goals**

The Board's FY 1999 Performance Plan preliminarily identified 15 specific FY 2000 annual performance goals in support of this General Goal and its associated objectives. This modified FY 2000 Performance Plan, written in accordance with the structure of the Board's updated Strategic Plan, captures all of the performance goal targets previously identified for FY 2000 within two broader-scope annual performance goals that have, collectively, 24 primary reviews.

The major external factor that may drive mid-year modifications to the annual performance goals outlined in the following tables relates to potential slips in DOE's schedule for stockpile support or research activities.

SAFE STEWARDSHIP OF THE NATION'S NUCLEAR WEAPONS STOCKPILE AND COMPONENTS

Objective 2-A:

**Safe Conduct of Stockpile Management.** 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.

Examples of FY 1999 Accomplishments	FY 2000 Performance Goals	FY 2001 Performance Goals
<p><b>DOE Standard on Hazards Analysis Reports:</b> In early 1999, in response to a Board Recommendation, DOE developed and published a standard on conducting and documenting hazards analyses for nuclear explosive operations. This important directive sets DOE's fundamental expectations and provides guidance on how to establish and document the safety basis that ensures hazardous activities involving nuclear explosives can be completed safely</p> <p><b>Lightning Protection at Pantex</b> The Board and its staff continued efforts over the last year to help DOE address the potential hazards from lightning to nuclear explosive operations at Pantex. This year, the DOE lightning protection project team (which was established in response to a Board reporting requirement) completed a comprehensive investigation and report detailing the threat of lightning to nuclear explosives, analyzing potential controls and mitigators, and summarizing the actions DOE considers necessary to protect nuclear explosive operations at Pantex from lightning threats. During this same time, DOE has identified and installed many additional lightning protective measures at the plant</p> <p><b>Chemical Safety:</b> Based on evaluations from its staff, the Board concluded that efforts to improve chemical safety at the Oak Ridge Y-12 Plant were not keeping pace with other defense nuclear sites or the Secretary of Energy's published expectations. After the Board communicated its concern, DOE has stepped up efforts to complete a chemical management program at Oak Ridge Y-12, including a renewed commitment to characterize chemical inventories for emergency planning purposes and to dispose of excess chemicals.</p> <p><b>Safety Controls for Specific Nuclear Explosive Operations:</b> The Board and its staff conducted numerous assessments of the safety of specific nuclear explosive activities at the Pantex Plant in the last year. These reviews, which included the W56 dismantlement, the W87 Life Extension Program, and the W62 surveillance program, identified safety-related issues such as the adequacy of safety analyses and controls, the flowdown of controls into operating-level procedures, and the readiness of activities to operate safely. As a result of the Board's involvement, DOE has taken positive action to improve the safety of all of these operations.</p> <p><b>Integrated Safety Management at Pantex:</b> In early FY1999, the Board issued Recommendation 98-2, <i>Integrated Safety Management at the Pantex Plant</i> urging DOE to take fundamental actions to improve the safety of all weapons-related work at the Pantex Plant. Principle among the Board's specific recommendations was that DOE simplify and expedite its process for re-engineering processes at Pantex such that the attendant safety improvements could be put in place sooner. DOE accepted Recommendation 98-2 and made specific commitments to improve safety management at Pantex including accelerating efforts to establish weapon-specific safety basis for all on-going activities at Pantex.</p> <p><b>Enriched Uranium Restart at Y-12:</b> The Board and its staff have been evaluating DOE efforts to resume enriched uranium operations at the Oak Ridge Y-12 Plant for several years. In the last year, the Board has identified and passed on to DOE several safety issues with the Phase A2 resumption project including design problems, safety analysis problems, and problems with implementation of safety controls. The Board and DOE worked cooperatively to resolve these issues such that Phase A2 operations could resume safely to support high priority national defense related missions.</p>	<p>The Board and staff will complete 16 assessments of DOE's efforts to develop and implement safety management systems for stockpile management activities. The Board's evaluations will be split roughly evenly 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, Oak Ridge Y-12 Plant, and Savannah River Site tritium activities.</p> <p>Candidate areas for Board and staff review include:</p> <ul style="list-style-type: none"> <li>• Weapon Safety Specifications and/or Hazard Analysis Reports for nuclear weapon activities, particularly the W62, W88 and W76</li> <li>• Safety basis analysis and change control for nuclear weapons activities or facilities</li> <li>• Cross-cutting functional areas at the Pantex Plant, Oak Ridge Y-12 Plant, or SRS tritium facilities</li> <li>• DOE/contractor operational readiness reviews or other readiness determinations particularly Phase B restart activities at Y-12 Plant Enriched Uranium Operations</li> <li>• Special studies of unique or significant hazards at a DOE weapons facilities</li> </ul> <p>In addition, the Board and staff will assess the adequacy of development and implementation of the ISM System and the safety controls identified for any new weapon system dismantlement projects at the Pantex Plant or the Oak Ridge Y-12 Plant (such as the W56) that start in FY 2000.</p>	<p>The Board and staff will complete 13 assessments of DOE's efforts to develop and implement safety management systems for stockpile management activities. The Board's evaluations will be split roughly evenly 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, Oak Ridge Y-12 Plant, and Savannah River Site tritium activities.</p> <p>Candidate areas for Board and staff review include:</p> <ul style="list-style-type: none"> <li>• Weapon Safety Specifications and/or Hazard Analysis Reports for nuclear weapon activities</li> <li>• Safety basis analysis and change control for nuclear weapons activities or facilities</li> <li>• Cross-cutting functional areas at the Pantex Plant, Oak Ridge Y-12 Plant, or SRS tritium facilities</li> <li>• DOE/contractor operational readiness reviews or other readiness determinations</li> <li>• Special studies of unique or significant hazards at a DOE weapons facilities</li> </ul> <p>In addition, the Board and staff will assess the adequacy of development and implementation of the ISM System and the safety controls identified for any new weapon system dismantlement projects (such as the B53) at the Pantex Plant or Oak Ridge Y-12 that start in FY 2001.</p>

**SAFE STEWARDSHIP OF THE NATION'S NUCLEAR WEAPONS STOCKPILE AND COMPONENTS**

**Objective 2-B:**

**Safe Conduct of Stockpile Stewardship.** The Board and its staff will verify the safety of DOE's defense nuclear activities undertaken to ensure the continuing effectiveness of the nuclear weapon stockpile in the absence of underground nuclear testing.

Examples of FY 1999 Accomplishments	FY 2000 Performance Goals	FY 2001 Performance Goals
<p><b>B332 Restart:</b> After a Board letter in December 1997 identifying weaknesses in work planning, authorization and control in Building 332, Plutonium Facility, the Board interacted with Lawrence Livermore National Laboratory and the Department of Energy throughout Building 332's Resumption of Operations in 1998 and 1999 to encourage and assist with the improvements. As a result, Building 332 has implemented a process to plan, authorize and control work with special nuclear material safety. With the Board's encouragement the process has been applied to the other facilities in the Superblock, i.e., Tritium Facility and Hardened Engineering Test Building. The Laboratory is revising site implementing guidance on planning, authorizing and control work to address a laboratory-wide systemic problem.</p> <p><b>Integrated Safety Management at LLNL:</b> As a result of the Board's effort to improve safety management at DOE defense nuclear facilities (Recommendation 95-2), LLNL has developed a set of Work Smart Standards (a set of requirements and standards for hazards specifically applicable to LLNL), is making significant progress with developing a description of its integrated safety management system, and is developing site-wide standards/guidance to implement an integrated safety management system. Through direct Board interaction, Board letters, and Board staff visits and reviews, the Board has provided assistance with and feedback to the Work Smart Standards set and to the Laboratory's efforts to develop policy and guidance to implement integrated safety management.</p> <p><b>Y2K:</b> Based on staff reviews at Lawrence Livermore National Laboratory and other sites, the Board determined the DOE had provided inadequate direction to the operators of its defense nuclear facilities with regard to evaluating safety-related systems for year 2000 compliance. The Board communicated its concern to DOE in a letter requesting that DOE report on the status of safety-related equipment evaluations at all defense nuclear facilities. In April 1999, DOE issued detailed guidance on the evaluation of safety-related systems, requiring those systems be treated in a manner similar to mission-essential systems.</p> <p><b>Los Alamos National Laboratory Pajarito Laboratory:</b> The Board and its staff identified deficiencies with the safety basis for activities conducted at the Pajarito Laboratory (also known as TA-18 which includes the Los Alamos Critical Experiments Facility). The Board assisted DOE and the lab in defining a path to improve the safety basis including urging that DOE focus on Basis for Interim Operations to upgrade the safety controls at Pajarito Laboratory as soon as possible.</p> <p><b>Damaged Nuclear Weapons:</b> The Board has recently focused attention on the issue that DOE's capability to safely perform the work necessary to dispose of damaged nuclear devices (DNDs) at defense nuclear facilities is rapidly disappearing. In the past, maintenance of the facilities and personnel necessary to support this mission depended on nuclear test operations. However, the personnel and facility infrastructure that were required to support testing operations are rapidly disappearing. Planning DND operations so that they can be executed safely represents challenges that DOE is not addressing. Nuclear Weapons. DOE has agreed with the Board's conclusions and is starting to increase its efforts to address this issue.</p>	<p>The Board and staff will complete 8 assessments of DOE's efforts to develop and implement safety management systems for stockpile stewardship activities. The Board will evaluate DOE's 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. The Board's efforts in this area will also cover DOE's efforts to address safety issues of aging-related changes in nuclear weapons components, including research and modeling, for weapon systems and components in the enduring stockpile. These reviews will focus on activities at Lawrence Livermore National Laboratory, Los Alamos National Laboratory, the Nevada Test Site, and Sandia National Laboratories.</p> <p>Candidate areas for Board and staff review include:</p> <ul style="list-style-type: none"> <li>• The safety basis analysis and change control for nuclear weapons activities or facilities particularly resumption of DOE-DP related work at the Sandia Annular Core Research Reactor</li> <li>• safety controls selected for hazardous weapons complex activities</li> <li>• cross-cutting functional areas at LANL, LLNL, NTS and SNL</li> <li>• ISM work-planning process (i.e., activity-specific hazard analysis, controls identification, and implementation of safety controls)</li> <li>• DOE/contractor operational readiness reviews or other readiness determinations</li> <li>• aging-related changes in nuclear weapons components for weapon systems in the enduring stockpile</li> </ul>	<p>The Board and staff will complete 6 assessments of DOE's efforts to develop and implement safety management systems for stockpile stewardship activities. The Board will evaluate DOE's 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. The Board's efforts in this area will also cover DOE's efforts to address safety issues of aging-related changes in nuclear weapons components, including research and modeling, for weapon systems and components in the enduring stockpile. These reviews will focus on activities at Lawrence Livermore National Laboratory, Los Alamos National Laboratory, the Nevada Test Site, and Sandia National Laboratories.</p> <p>Candidate areas for Board and staff review include:</p> <ul style="list-style-type: none"> <li>• The safety basis analysis and change control for nuclear weapons activities or facilities</li> <li>• safety controls selected for hazardous weapons complex activities</li> <li>• cross-cutting functional areas at LANL, LLNL, NTS and SNL</li> <li>• ISM work-planning process (i.e., activity-specific hazard analysis, controls identification, and implementation of safety controls)</li> <li>• DOE/contractor operational readiness reviews or other readiness determinations</li> <li>• aging-related changes in nuclear weapons components for weapon systems in the enduring stockpile</li> </ul>

### 3.3 SAFE DISPOSITION OF HAZARDOUS REMNANTS OF WEAPONS PRODUCTION

#### 3.3.1 Overview

The objectives and annual performance goals in support of the Board's third general goal address the Board's efforts to confirm the safe disposition of hazardous nuclear weapons legacy materials and facilities. Achievement of this goal will require a multi-year, multi-focus, multi-site effort by the Board during each annual performance period. The Board's oversight efforts in support of this goal are organized, in general, according to the hazardous nuclear material of focus. The Board's two strategic objectives that support this goal address DOE's efforts to reduce the risks of legacy materials by appropriate processing and disposition, as well as efforts to decommission production facilities and sites no longer essential to the national security mission.

More than fifty years of nuclear weapons production has resulted in a hazardous collection of surplus, legacy materials consisting of radioactive and chemically reactive metals, residues, spent fuel, and wastes throughout the DOE complex. These include approximately 100 million gallons of highly radioactive wastes; unprocessed plutonium, enriched uranium, and other actinides; thousands of drums of plutonium- and uranium-bearing residues awaiting processing; and more than 2000 tons of degraded irradiated uranium fuel awaiting stabilization. Left unremediated, these materials represent a significant threat to the health and safety of facility workers and the public, as well as to the environment. It is the Board's intention to ensure that DOE places a high priority on reducing the risks that these high hazard materials pose and monitoring the operations and activities involved in cleanup of defense nuclear facilities. Through its oversight of DOE defense nuclear facilities, the Board seeks to confirm that DOE's stabilization and decommissioning programs are performed safely and completed without undue delay.

The Board's Strategic Plan identifies two specific objectives that the Board believes should be pursued to ensure and improve the safe cleanup of DOE's defense nuclear facilities:

- 3-A: Material Stabilization.** The Board and its staff will verify that DOE properly and safely characterizes, stabilizes, processes, and stores surplus plutonium, uranium, and other actinides, residues, spent fuel, and wastes from the nuclear weapons program, and that DOE provides for expeditious disposal of these materials, as needed.
- 3-B: Facility Decommissioning.** The Board and its staff will verify that DOE aggressively pursues the safe decommissioning of excess defense nuclear facilities that pose a significant risk to the workers or the public.

The Board believes that specific actions currently planned for FY 2000 and FY 2001 to advance each of these objectives are possible and desirable. These actions, which are specified in the following tables, build on the Board's activities and accomplishments of past years in technically rigorous oversight and constructive interaction with the DOE. Examples of related FY 1999 performance accomplishments that have supported the Board's objectives are also provided in the following tables. All such activities and accomplishments have been publicly identified in documents such as the Board's Annual Reports, letters, technical reports, and previous budget requests. The Board's actions described in the following tables are also based on its assessment of progress expected in FY 2000 and on major DOE efforts planned during FY 2001, which in turn are predicated on many factors, most importantly, the DOE budget and its accomplishments during this period.

### **3.3.2 Adjustments to the FY 2000 Performance Goals**

The Board's FY 1999 Performance Plan preliminarily identified 6 specific FY 2000 annual performance goals in support of this General Goal and its associated objectives. This modified FY 2000 Performance Plan, written in accordance with the structure of the Board's updated Strategic Plan, captures all of the performance goal targets previously identified for FY 2000 within two broader-scope annual performance goals that have, collectively, 13 primary reviews.

The primary external factor that may drive mid-year modifications to the annual performance goals outlined in the following tables relates to the changing schedules of DOE activities driven by revised priorities.



SAFE DISPOSITION OF HAZARDOUS REMNANTS OF WEAPONS PRODUCTION

Objective 3-A:

**Material Stabilization:** The Board and its staff will verify that DOE properly characterizes, stabilizes, processes, and safely stores surplus plutonium, uranium, and other actinides, residues, spent fuel, and wastes from the nuclear weapons program, and that DOE provides for expeditious disposal, as needed.

Examples of FY 1999 Accomplishments	FY 2000 Performance Goals	FY 2001 Performance Goals
<p><b>Improved Remediation Schedules for Legacy Materials.</b> In December 1998, after numerous formal and direct interactions with the Board and its staff, DOE issued an up-to-date plan and schedule for addressing the numerous health and safety risks posed by the highest priority legacy materials stored throughout the DOE nuclear weapons complex, originally identified by the Board in Recommendation 94-1. However, the Board identified several deficiencies in the new plan, and soon thereafter discovered that site-level planning did not support several significant commitments. The Board has engaged DOE on these issues, and will see that they are resolved expeditiously.</p> <p><b>Operational Problems at Savannah River Site.</b> In the spring of 1999, the Board's continuing review of operational data for DOE defense nuclear facilities revealed a negative trend in control of work and operations at the Savannah River Site. The Board issued a letter to DOE in May 1999 identifying this problem to DOE, stating that a broader look at the underlying causes and a systematic understanding of those causes would be required to correct weaknesses in performance. In response, DOE has undertaken corrective actions to reverse this trend and ensure a sustained, highly satisfactory level of performance.</p> <p><b>Completion of Recommendation 94-3 at Rocky Flats.</b> The Board issued Recommendation 94-3, <i>Rocky Flats Plutonium Storage</i>, to ensure that the large quantity of plutonium at the Rocky Flats Environmental Technology Site would be safely stored. The Board recommended that DOE take a systematic approach to evaluating the suitability of Building 371 for the proposed new mission of storing the site's entire plutonium inventory, and prepare a program plan for building upgrades and improvements consistent with the building's mission. As a result of the Board's recommendation, upgrades to the building's structure, systems, and components, as well as the safety basis, were completed during Fiscal Year 1999. The Board closed this recommendation and now considers the building adequate for its current storage mission.</p> <p><b>Characterization and Safety of Hanford High-Level Waste Tanks.</b> The Board and its staff have continued to press DOE to resolve the health and safety issues presented by the 177 high-level waste tanks at Hanford. In 1999, the Board worked closely with DOE to develop a strategy for resolving the remaining safety-related uncertainties in the characterization of the wastes, and to ensure that DOE developed a sound strategy for mitigating flammable gas retention problems in Tank 241-SY-101. Because of these efforts, Board Recommendation 93-5, dealing with Hanford high-level waste characterization, is expected to be closed shortly, and the Board expects that DOE will be able to resolve the Tank 241-SY-101 problem in FY 2000.</p>	<p>The Board and its staff will complete 9 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 process operations, the safety of ongoing operations, and the suitability of long-term storage and disposal facilities. Candidate areas for Board and staff review include:</p> <ul style="list-style-type: none"> <li>• Stabilization and packaging of plutonium metal and oxide at Savannah River, Rocky Flats, Hanford, and LLNL (<i>Recommendation 94-1</i>)</li> <li>• Stabilization and disposal of plutonium-bearing solutions and residues at Savannah River, Rocky Flats, and Hanford (<i>Recommendation 94-1</i>)</li> <li>• Characterization, stabilization, and packaging of special isotopes, including uranium-233 materials at Oak Ridge (<i>Recommendation 97-1</i>), neptunium and americium/curium solutions at Savannah River (<i>Recommendation 94-1</i>), and uranium in the Molten Salt Reactor Experiment at Oak Ridge (<i>Recommendation 94-1</i>)</li> <li>• Stabilization and disposition of highly-enriched uranium solutions at Savannah River (<i>Recommendation 94-1</i>)</li> <li>• New and modified plutonium storage facilities, such as the Savannah River Site's K-Area Materials Storage Facility, and modifications to storage vaults at the Hanford Plutonium Finishing Plant</li> <li>• Characterization and planning for treatment of high-level waste at the Hanford Site; selection of a treatment process for high-level waste liquids and salts at the Savannah River Site (<i>Recommendation 96-1</i>)</li> <li>• Remediation of flammable gas safety issues in the Hanford high-level waste tank farms, particularly Tank 241-SY-101 (<i>Recommendation 93-5</i>)</li> <li>• Safe start-up of the new Replacement High-Level Waste Evaporator at Savannah River</li> <li>• Selection of a process for treating and immobilizing high-level waste liquids and calcine at INEEL</li> <li>• Stabilization of spent nuclear fuel at the Savannah River H-Canyon (<i>Recommendation 94-1</i>)</li> </ul>	<p>The Board and its staff will complete 8 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 process operations, the safety of ongoing operations, and the suitability of long-term storage and disposal facilities. Candidate areas for Board and staff review include:</p> <ul style="list-style-type: none"> <li>• Stabilization and packaging of plutonium metal and oxide at Savannah River, Rocky Flats, Hanford, and LANL (<i>Recommendation 94-1</i>)</li> <li>• Stabilization and disposal of plutonium-bearing solutions and residues at Savannah River, Rocky Flats, Hanford, and LANL (<i>Recommendation 94-1</i>)</li> <li>• Characterization, stabilization, and packaging of special isotopes, including uranium-233 materials (<i>Recommendation 97-1</i>), neptunium and americium/curium solutions (<i>Recommendation 94-1</i>), and Molten Salt Reactor Experiment uranium (<i>Recommendation 94-1</i>)</li> <li>• Stabilization and disposition of highly-enriched uranium solutions at Savannah River (<i>Recommendation 94-1</i>)</li> <li>• Designs and technologies of the proposed Plutonium Immobilization Facility and Pit Disassembly and Conversion Facility, and their interfaces with the proposed mixed oxide fuel fabrication facility</li> <li>• Planning for treatment of high-level waste at the Hanford Site; design of the chosen treatment process for high-level waste liquids and salts at the Savannah River Site (<i>Recommendation 96-1</i>)</li> <li>• Design, construction, and testing of high-level waste retrieval and transfer systems at Hanford</li> <li>• Safety of operations at Waste Isolation Pilot Plant (WIPP) as activities continue to ramp up from initial startup, and preparations to begin handling remote-handled transuranic wastes at WIPP, including preparations at the sites that will be the first to ship such wastes to WIPP</li> <li>• Implementation of newly issued DOE Order 435.1, <i>Radioactive Waste Management</i>, which governs all phases of the lifecycle of high-level, low level, transuranic, and mixed wastes</li> </ul>

SAFE DISPOSITION OF HAZARDOUS REMNANTS OF WEAPONS PRODUCTION

**Objective 3-B:** **Facility Decommissioning:** The Board and its staff will verify that DOE aggressively pursues the safe decommissioning of excess defense nuclear facilities that pose a significant risk to the workers or the public.

Examples of FY 1999 Accomplishments	FY 2000 Performance Goals	FY 2001 Performance Goals
<p><b>Upgraded Safety Controls for Decommissioning at Rocky Flats.</b> Decommissioning activities are being conducted in several buildings at the Rocky Flats Environmental Technology Site. The Board identified that safety controls for protection of the workers did not provide the desired level of protection, because of an inappropriate reliance upon personal protective equipment (e.g., respirators) rather than engineered controls to eliminate or mitigate hazards. Furthermore, when engineered controls were used (e.g., air movers), they were not adequately analyzed to ensure that they produced the desired result. In response to these concerns, a multi-disciplinary team was chartered at RFETS to develop more rigorous engineered controls and analyze performance of the controls. Enhanced worker protection controls are now being applied to demolition of contaminated equipment at the site. RFETS is also investigating the use of remote equipment for size reduction for contaminated equipment.</p> <p><b>Activity Level ISM of Hanford Decommissioning Work:</b> The Board's staff reviewed planning and implementation of decommissioning work that is being done by the Hanford Environmental Restoration Contractor. The staff found that the work control procedures and practices need improvement to meet the intent of Integrated Safety Management. The approach to hazard analysis does not use techniques such as those described by the American Institute of Chemical Engineers, <i>Guidelines for Hazard Evaluation Procedures</i>, or the U. S. Department of Labor, Occupational Safety and Health Administration (OSHA) publication, OSHA 3071, <i>Job Hazard Analysis</i>. These deficiencies are such that it is not clear that the controls are adequate to protect personnel performing decommissioning work at Hanford. Some areas of needed improvement have been directly communicated to DOE.</p> <p><b>Radiation Protection Measures for Metal Tritides during Decommissioning:</b> During FY1999, the Board's staff evaluated radiation protection program measures for decommissioning work in areas at the Miamisburg Environmental Management Project (MEMP) that are suspected of being contaminated with tritium compounds such as metal tritides. As a result of staff visits and subsequent information exchanges, the MEMP contractor prepared a corrective action plan to address deficiencies in the radiation protection program, and work is proceeding to resolve these issues before major decommissioning work begins in mid-September 1999. These technical issues also apply to other defense nuclear facilities, so the Board has requested that DOE articulate a technical position on this matter to ensure that appropriate measures are implemented across the defense nuclear facilities complex. As a result of this action, DOE-EM informed DOE Field Offices of the issue, drafted a technical position regarding control levels for airborne radioactivity, and has committed to developing an updated technical approach</p>	<p>The Board and its staff will conduct 4 assessments of the adequacy of plans, standards, procedures, and execution for four activities associated with decommissioning of DOE defense nuclear facilities. These assessments will be conducted using the principles of integrated safety management to ensure that decommissioning efforts are performed safely. Additionally, the Board and its staff will continue efforts to confirm that high-risk facilities are decommissioned in a timely manner. These assessments are conducted in collaboration with State and other regulatory authorities, as needed, and on a schedule that supports DOE's operational plans. Candidate areas for Board and staff review include:</p> <ul style="list-style-type: none"> <li>• Building 324 and/or 327, 233-S Facility, or Canyon Initiative at Hanford</li> <li>• Building 771 or 776 at Rocky Flats</li> <li>• Building 9206 at Oak Ridge</li> <li>• CPP-603 spent nuclear fuel basins at INEEL</li> </ul>	<p>The Board and its staff will conduct 3 assessments of the adequacy of plans, standards, procedures, and execution for three activities associated with decommissioning of DOE defense nuclear facilities. These assessments will be conducted using the principles of integrated safety management to ensure that decommissioning efforts are performed safely. Additionally, the Board and its staff will continue efforts to confirm that high-risk facilities are decommissioned in a timely manner. These assessments are conducted in collaboration with State and other regulatory authorities, as needed, and on a schedule that supports DOE's operational plans. Candidate areas for Board and staff review include:</p> <ul style="list-style-type: none"> <li>• Hanford Plutonium Finishing Plant deactivation planning</li> <li>• Building 771 or 776 at Rocky Flats</li> <li>• Building 9206 at Oak Ridge</li> <li>• Decommissioning activity at Savannah River</li> <li>• High-level waste tank closure plans at INEEL</li> </ul>

## STATUTORY MISSION OF THE BOARD

Congress established the Defense Nuclear Facilities Safety Board (Board) in Public Law 100-456 on September 29, 1988. The statutory mission of the Board includes the following major functions:

- **Review and Evaluation of Standards.** The Board shall review and evaluate the content and implementation of the standards relating to the design, construction, operation, and decommissioning of defense nuclear facilities of the Department of Energy (DOE) including all applicable DOE Orders, regulations, and requirements at each department of Energy defense nuclear facility. The Board shall recommend to the Secretary of Energy those specific measures that should be adopted to ensure that public health and safety are adequately protected. The Board shall include in its recommendations necessary changes in the content and implementation of such standards, as well as matters on which additional data or additional research is needed.
- **Investigations.** The Board shall investigate any event or practice at a Department of Energy defense nuclear facility which the Board determines has adversely affected, or may adversely affect, public health and safety.
- **Analysis of Design and Operational Data.** The Board shall have access to and may systematically analyze design and operational data, including safety analysis reports, from any Department of Energy defense nuclear facility.
- **Review of Facility Design and Construction.** The Board shall review the design of a new Department of Energy defense nuclear facility before construction of such facility begins and shall recommend to the Secretary of Energy, within a reasonable time, such modifications of the design as the Board considers necessary to ensure adequate protection of public health and safety. During the construction of any such facility, the Board shall periodically review and monitor the construction and shall submit to the Secretary of Energy, within a reasonable time, such recommendations relating to the construction of that facility as the Board considers necessary to ensure adequate protection of public health and safety. An action of the Board, or a failure to act, under this paragraph may not delay or prevent the Secretary of Energy from carrying out the construction of such a facility.
- **Recommendations.** The Board shall make such recommendations to the Secretary of Energy with respect to Department of Energy defense nuclear facilities, including the operations of such facilities, standards, and research needs, as the Board determines are necessary to ensure adequate protection of public health and safety. In making its recommendations, the Board shall consider the technical and economic feasibility of implementing the recommended measures.

Created as an independent establishment within the Executive Branch, the Board is made up of five Members appointed from civilian life by the President, by and with the advice and consent of the Senate. The Board's enabling statute requires that the Board Members be respected experts in the field of nuclear safety with demonstrated competence and knowledge relevant to the independent investigation and oversight functions of the Board. The Senate confirmed the first five Board Members on October 19, 1989.

## OBJECT CLASS SUMMARY

Actual obligations for FY 1999, projected obligations for FY 2000, and the Board's Budget Request for FY 2001, are presented by object class accounts in Exhibit A on the following page. The Board proposes to utilize the budget resources requested in the following manner:

**Salaries and Benefits.** The FY 2001 expenditure request includes funding of \$13,376,000 to support the projected salary and benefit costs for the five DNFSB Board Members and 100 full-time staff. As stated earlier, the funding for salaries and benefits represents 71 percent of the Board's FY 2001 Budget Request. In calculating the projected salary needs of the Board, the following federal pay adjustment factor for the Executive Branch employees is used:

- Pay increase of 3.7 percent beginning in January 2001.

Agency contributions for employees covered by the Civil Service Retirement System increased by 1.51 percent beginning in October 1997. Consequently, employee benefits are estimated at 24 percent of base salaries or \$24,028 per FTE in FY 2001.

In establishing the Board, Congress sought to bring the very best talent available to focus on health and safety oversight questions associated with the design, construction, operation, and decommissioning of DOE defense nuclear facilities. The recruitment and retention of scientific and technical staff with outstanding qualifications has and will continue to be critical to the successful accomplishment of the Board's mission. The Board has assembled a small technical staff with extensive backgrounds in science and engineering 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. As an indication of the Board's technical talent, 26 percent of the technical staff hold degrees at the Ph.D. level and an additional 67 percent have masters degrees. Almost all technical staff members, except interns, possess practical nuclear experience gained from duty in the U.S. Navy's nuclear propulsion program, the nuclear weapons field, or the civilian reactor industry. Therefore, it is of paramount importance that the Board receive sufficient funds to meet the salary and benefit requirements of the staff.

The Board maintains its on-site safety oversight of defense nuclear facilities by assigning experienced technical staff members to full-time duty at priority DOE sites. Two full-time site representatives are stationed at the Pantex site to oversee nuclear weapons activities including the weapons stockpile stewardship and weapons disassembly programs, and two site representatives are stationed at the Hanford site to monitor waste characterization and stabilization and facility deactivation. The Board has assigned two full-time site representatives at Rocky Flats to monitor the DOE effort to deactivate facilities and stabilize and store the large plutonium inventory at the site, and two site representatives at Savannah River to monitor the DOE's efforts to deactivate

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

FY 2001 CONGRESSIONAL BUDGET REQUEST - 2/4/00

BUDGET ACCOUNT	COST ELEMENT	FY 1999 OBLIGATIONS (ACTUAL)	FY 2000 FINANCIAL PLAN	FY 2001 BUDGET REQUEST
PERSONNEL SALARIES -- (11)		\$8,783,489	\$9,768,000	\$10,754,000
PERSONNEL BENEFITS -- (12)		\$2,303,141	\$2,334,000	\$2,622,000
TRAVEL -- (21)		\$535,308	\$604,000	\$600,000
TRANSPORTATION OF THINGS -- (22)		\$155,962	\$121,000	\$51,000
RENTAL PAYMENTS TO GSA -- (23.1)		\$2,160,000	\$2,044,000	\$2,187,000
COMMUNICATIONS & UTILITIES -- (23.3)		\$123,560	\$125,000	\$142,000
PRINTING & REPRODUCTION -- (24)		\$26,356	\$31,000	\$31,000
CONSULTING SERVICES -- (25.1)		\$2,082,092	\$1,500,000	\$1,000,000
OTHER SERVICES -- (25.2)		\$1,006,929	\$787,000	\$839,000
GOVERNMENT SERVICES -- (25.3)		\$174,745	\$200,000	\$225,000
SUPPLIES & MATERIALS -- (26)		\$282,536	\$230,000	\$230,000
EQUIPMENT -- (31)		\$170,749	\$240,000	\$240,000
*** TOTAL OBLIGATIONS ***				
		\$17,804,867	\$17,984,000	\$18,921,000
NEW BUDGET AUTHORITY				
		\$16,500,000	\$16,935,000*	\$18,500,000
UNOBLIGATED BALANCE - PREV. FY				
		\$2,842,828	\$2,017,834	\$968,834
RECOVERY OF PRIOR YR OBLIGATIONS				
		\$479,873	\$0	\$0
TOTAL BUDGETARY RESOURCES				
		\$19,822,701	\$18,952,834	\$19,468,834
EST. UNOBLIGATED BAL. - CUR. FY				
		\$2,017,834	\$968,834	\$547,834
APPROPRIATION				
		\$16,500,000	\$16,935,000	\$18,500,000
OUTLAYS				
		\$17,026,790	\$17,500,000	\$18,000,000
STAFF & BOARD MEMBERS (FTE's)				
		94	99	105

\*\$17,000,000 appropriation; \$65,000 rescission

facilities, stabilize waste materials, and store and process tritium. The Board has assigned two full-time site representatives to monitor safety and health conditions at Oak Ridge Y-12, and other defense nuclear facilities in this area.

The site representatives program provides a cost-effective means for the Board to closely monitor DOE activities, and to identify health and safety concerns promptly by having on-site staff conducting first-hand 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.

**Travel.** The Board requests \$600,000 to support the official travel of the Board Members and staff. Extensive travel is necessary to the various DOE defense nuclear facilities located throughout the United States in order for the Board Members and staff to fulfill the Board's statutory mission. The Board is required to react to incidents at the DOE defense nuclear facilities that may affect public health and safety, requiring unplanned travel expenditures to support its work at these sites. During FY 1999, Board Members, technical staff and the Board's outside technical experts made 185 team visits to major defense nuclear sites in support of its high priority public health and safety mission.

The Board is also authorized to station staff members at DOE sites or facilities during critical construction and testing periods. The Board has assigned technical staff teams to round-the-clock monitoring of major start-up, testing, or restart activities at various DOE sites. The presence of its technical staff has proved to be invaluable in providing the Board with first hand information on the demonstrated readiness, capabilities, and performance of the DOE and its contractors for ensuring safety in the conduct of such activities.

Travel funds are also used to pay for Board expenses associated with public hearings and meetings, where any interested persons or groups may present comments, technical information, or data concerning health and safety issues under Board inquiry.

**Transportation of Things.** The Board has included \$51,000 in its FY 2001 Budget Request for the shipment of household goods for employees relocating to the Washington, DC area or to DOE sites.

**Rental Payments to GSA.** The Board requests funds totaling \$2,187,000 to reimburse the General Services Administration (GSA) for projected office rental costs. This overhead expense represents approximately 12 percent of the Board's FY 2001 Budget Request.

**Communications and Utilities.** The FY 2001 Budget Request includes \$142,000 for projected communications support costs. Funds in this account will be used for telephone services, Internet access charges, postage costs, special messenger services, and equipment rentals.

**Printing and Reproduction.** The budget request includes \$31,000 for reimbursing the U.S. Government Printing Office for publication of the required legal notices in the *Federal*

*Register*. Routine printing and copying charges, including the Board's Annual Report to the Congress and technical reports, are also included in this account.

**Consulting Services.** Although authorized by Congress and the President to have up to 150 FTEs, due to budgetary constraints, the Board currently has only 96 full-time staff onboard. While the Board employs a highly capable staff, it is not practical or desirable to have permanent staff skilled in every specialty for which needs occur. For example, following several reviews at Pantex, the Board concluded that the potential hazards from lightning to nuclear explosive operations had not been adequately addressed by DOE. As this situation is unique to the weapons-related activity at Pantex, outside expertise in the area of lightning protection was acquired to assist the Board in its review.

The Board plans to continue to obtain outside technical experts in highly specialized areas. Expertise on the assembly and disassembly of certain specific nuclear weapon components may be needed. Such expertise may be required for short periods with little advance notice should an imminent or severe threat to public health and safety be identified at a DOE defense nuclear facility. Therefore, it is extremely important to have the funds necessary to immediately contract for this expertise when needed. Each outside technical expert that the Board employs will continue to be carefully screened for possible conflict of interest.

A list of major technical support contracts, with a brief description of each contractor's areas of expertise, and a chart which reflects funding levels for this support is included in Appendix C. The FY 2001 Budget Request includes \$1,000,000 in this account for technical support contracts to assist the Board in its health and safety reviews. This amount represents a 52 percent reduction from the amount obligated for this support in FY 1999.

**Other Services.** The budget request includes \$839,000 to fund the recurring administrative support needs of the Board in FY 2001 such as security services, court reporting expenses, employee training, records storage and retrieval services, and computer network maintenance.

**Government Services.** The Board's budget request includes \$225,000 to pay the cost of reimbursable support agreements with other federal agencies for administrative services such as accounting, payroll, health unit, and drug-free workplace testing and support.

**Supplies and Materials.** The Board requests \$230,000 to maintain the technical reference information for its in-house library, as well as for continued access to various technical computer databases, and for general office supplies and materials.

**Equipment.** The FY 2001 Budget Request includes \$240,000 to maintain the Board's information technology (IT) base. The Board will purchase replacement laptop computers for the technical and legal staffs to use on travel at the various defense nuclear sites. A number of older desktop computers will be replaced and upgraded as part of a continuing cycle to stay current with improvements in software and hardware. Funds will also be used for enhanced Internet security.



**TECHNICAL SUPPORT CONTRACTS SUMMARY**

A list of major technical support contracts, with a brief description of each contractor's areas of expertise, is included in this Appendix. The FY 2001 Budget Request includes \$1,000,000 in this account for technical support contracts to assist the Board in its health and safety reviews.

DEFENSE NUCLEAR FACILITIES  
SAFETY BOARD

TECHNICAL SUPPORT CONTRACTS  
(Status as of 02/07/00)

<u>CONTRACTOR</u>	<u>CONTRACT EXPIRATION DATE</u>	<u>DESCRIPTION OF WORK</u>
Dr. Harold M. Agnew	02/19/00	Provide expertise related to strategic safety issues associated with those facilities involved in the assembly, disassembly, and testing of nuclear weapons, specifically advising the Board in production, dismantlement/disposition, safe handling, testing, and storage of nuclear weapons, nuclear explosive devices, and nuclear weapon components, and the nuclear and hazardous materials used in these items; as well as assisting the Board in understanding the existing involvement of the design laboratories in these activities, and evaluating the sufficiency of current and proposed efforts.
Briere Associates, Inc.	09/30/00	Provide technical editing services of Board documents that include, but are not limited to technical reports, trip reports, its Annual Report to Congress, and Board Recommendations to the DOE. These services include analyzing manuscripts in terms of its objective, style, and manner of presentation and recommend revisions as appropriate.

DESCRIPTION OF  
WORK

CONTRACT EXPIRATION  
DATE

CONTRACTOR

H&H Consultants, Inc. 09/30/00

Provide technical support to the Board, specifically in the review and evaluation of systems and seismic engineering of structures, systems and components with particular emphasis on analytical techniques utilized in structural analysis with special emphasis on seismic issues; adequacy of various types of analyses performed by DOE contractors; development and relevancy of standards and criteria used in the design and qualification of DOE facilities; and integration of programmatic structural issues from the overall historical prospective.

Dr. William E. Kastenber 06/17/00

Provide assistance in the areas of probabilistic risk assessment and human reliability analysis of defense nuclear operations, specifically involving matters associated with the identification of high risk accidents, prioritization of safety related issues, and development of risk based design criteria for facilities handling special nuclear materials.

Dr. Joseph A. Leary 12/31/00

Provide technical support to the Board, specifically involving review of operations and nuclear technology at facilities involved in processing and handling of nuclear materials. Examples of recent work include: evaluation of technologies to stabilize plutonium residues, plutonium storage safety issues, and Rocky Flats plutonium stabilization activities.

CONTRACT EXPIRATION

DATE

04/30/00

DESCRIPTION OF

WORK

CONTRACTOR

Dr. James L. Liverman

Provide technical support to the Board in the general subject area of radiation protection, specifically involving review and evaluation of DOE's Implementation Plan for Board Recommendation 91-6, amendments to 10 CFR 835 Rule, radiological protection standards, and other radiological and environmental health and safety issues.

01/31/01

Management Support Technology, Incorporated

Provide technical support to the Board, specifically involving evaluation of policies, standards, and procedures governing operations and maintenance as the operations and maintenance activities themselves and the training and qualification programs for operations, technical, support, and maintenance personnel. Recent work includes assisting the staff in evaluating the Department of Energy's development and implementation of Integrated Safety Management guidance in response to Board Recommendation 95-2. In addition, assistance has been provided in assessing operations and maintenance at the Savannah River Site, Idaho National Engineering and Environmental Laboratory, and the Rocky Flats Environmental Technology Site as they prepare to restart defense nuclear facilities and activities.

01/31/01

Lary M. McGrew

Provide expertise related to the strategic safety issues associated with those facilities involved in the assembly, disassembly, and testing of nuclear weapons systems. Specifically, advise the Board from direct experience in conventional and

CONTRACT EXPIRATION  
DATE

DESCRIPTION OF  
WORK

Lary M. McGrew  
(Continued)

01/31/01

nuclear explosive technology and safety, nuclear materials handling and storage, criticality safety, and nuclear weapons assembly, storage and testing. Recent work has included, for example, review of the W79 dismantlement process at the Pantex plant.

Dr. Sol Pearlstein

09/30/00

Provide technical support to the Board specifically related to criticality safety reviews and other related fields including nuclear and reactor physics, and accelerator production of tritium. This effort includes participation in the review of safety analysis reports, DOE facility visits, presentation of lectures on criticality and related technical subjects to the staff, the development of specialized nuclear information or databases for Board applications, and assisting the staff in monitoring DOE performance on specific issues or Board Recommendations.

Paul C. Rizzo Associates, Inc.

09/30/00

Provide technical support to the Board, specifically in the review and evaluation of systems and seismic engineering of structures, systems and components with particular emphasis on: geotechnical investigation and soil mechanics; systems engineering; adequacy of various types of analyses performed by DOE contractors; seismological hazards; safety analysis; hydrology; and environmental related issues.

CONTRACT EXPIRATION  
DATE

DESCRIPTION OF  
WORK

CONTRACTOR

J.D. Stevenson, Consulting  
Engineer

09/30/00

Provide technical support to the Board, specifically in the review and evaluation of systems and seismic engineering structures, systems and components with particular emphasis on: applicability and content of orders and standards developed by DOE and its contractors as well as existing codes and standards used at DOE utilities; applicability of commercial nuclear industry standards as they apply to DOE facilities; quality assurance related matters; adequacy of various types of analyses performed by DOE contractors; and hazard and systems classification.

Dr. Gerald Tape

11/30/00

Provide expertise related to strategic safety issues associated with those facilities involved in the assembly, disassembly, and testing of nuclear weapons, specifically advising the Board in production, dismantlement/disposition, safe handling, testing, and storage of nuclear weapons, nuclear explosive devices, and nuclear weapon components, and the nuclear and hazardous materials used in these items; as well as assisting the Board in understanding the existing involvement of the design laboratories in these current and proposed efforts.

Mr. Richard Collier

09/30/00

Provide expertise related to lightning safety issues at defense nuclear facilities. These efforts include assessing lightning safety issues in and around large structures.

<u>CONTRACTOR</u>	<u>CONTRACT EXPIRATION DATE</u>	<u>DESCRIPTION OF WORK</u>
Dr. Herbert Kouts	01/17/01	Provides a variety of technical expertise on a wide range of subjects associated with safety at DOE's defense nuclear facilities, including: safety management, criticality, DOE's stabilization, storage and disposition of nuclear materials, nuclear reactor physics, various issues related to nuclear facilities safety engineering, evaluation of DOE's implementation of Board recommendations and integrated safety management and protection of workers and the public in support of the Board's oversight authority.

# Outside Technical Contracts

by Fiscal Year

