The Secretary of Energy
Washington, DC 20585

May 20, 2009

The Honorable Joseph R. Biden, Jr.
President of the Senate
Washington, D.C. 20510

Dear Mr. President:

Section 316(b) of the Atomic Energy Act of 1954, as amended, requires the Department of Energy to submit a written report to Congress addressing the Department's activities related to the Defense Nuclear Facilities Safety Board (Board). Enclosed is the calendar year 2008 report entitled *Department of Energy Activities Relating to the Defense Nuclear Facilities Safety Board.*

Highlights of the Department's accomplishments are included in the report's Executive Summary. Additional details, as well as the status of the Department's commitments to the Board, are included in the body of the report.

If you have any questions, please contact me or Ms. Betty A. Nolan, Senior Advisor, Office of Congressional and Intergovernmental Affairs, at (202) 586-5450.

Sincerely,

Steven Chu

Enclosure

Annual Report to Congress

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

Calendar Year 2008

U.S. Department of Energy
Washington, DC 20585

May 2009

Table of Contents

Executive Summary

The Department of Energy (DOE) provides this Annual Report to Congress in accordance with Section 316(b) of the Atomic Energy Act of 1954, as amended [codified at 42 U.S.C § 2286e (b)]. This Annual Report describes the Department's activities during calendar year 2008 that are related to the Defense Nuclear Facilities Safety Board (Board), including the Department's key safety initiatives, status of Board recommendations, and interface activities between the Department and the Board.

Key Safety Initiatives

The Department is implementing multiple initiatives to improve assurance of public health and safety. The DOE Office of Health, Safety and Security (HSS) leads many of the ongoing safety activities and initiatives that are implemented Department-wide. During 2008, HSS led the following key safety initiatives:

- The Department strengthened the timely and appropriate evaluation of safety considerations and controls for engineering and construction projects by issuing DOE-STD-1189, *Integration of Safety into the Design Process*. In addition, the Department completed a comprehensive series of Guides that support effective implementation of DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*, which establishes project management requirements.

- The Department formed the Office of Quality Assurance Policy and Assistance, established the DOE Federal Quality Council, and conducted a range of activities to improve quality assurance (QA) performance throughout the Department.

- The Department initiated a comprehensive review of its safety requirements directives in an effort to simplify and clarify them, reduce any unnecessary burden, and ensure that they fully support effective and efficient accomplishment of the Department's mission.

- The Department completed, continued, or initiated development of policy directives or standards in key technical areas, including nuclear materials packaging, digital instrument and control, justifications for continued operations, validation of safety controls, and risk assessment for nuclear safety.

- The Department teamed with the Energy Facility Contractors Group in developing a path forward for improving safety culture as part of effective integrated safety management (ISM) systems throughout the Department. The Department's "ISM Champions" and its Idaho Operations Office sponsored a significant and successful DOE-wide workshop to share lessons learned and best practices for improving safety and mission performance.

- The Department continued its efforts to upgrade the technical and managerial capabilities of its Federal staff responsible for operations and oversight of defense nuclear facilities by upgrading Functional Area Qualification Standards, completing a complex-wide evaluation of safety system oversight, fostering its effective Facility Representatives program, and re-instituting the corporate intern program.

Many other activities and initiatives were led by the Department's program offices for their respective areas of responsibility, such as extensive risk reduction efforts and the Chief of Nuclear Safety activities. Noteworthy program accomplishments for the Office of Environmental Management (EM) during calendar year 2008 include:

- The Savannah River Site produced 225 cans of vitrified high-level waste and disposed of 800 cubic meters of transuranic waste (comprising 3,136 drums) at the Waste Isolation Pilot Plant.

- EM let five new contracts including contracts to manage radioactive waste tank farms at Hanford and the Savannah River Site and a contract for management and operations activities for most of the Savannah River Site.

- EM initiated pretreatment of tank salt waste at the Savannah River Site and processed over 140,000 gallons of tank waste.
- EM's Advanced Mixed Waste Treatment Facility attained 9 million safe man-hours in the tank waste program and 7.7 million hours without a lost day accident.
- EM established a Standards and Quality Assurance organization, developed a Standard Review Plan, completed a number of QA audits, developed and implemented quality performance metrics, and established a Quality Assurance Corporate Board.

Noteworthy accomplishments for the National Nuclear Security Administration (NNSA) during calendar year 2008 include:

- NNSA has implemented significant safety improvements in all of its nuclear explosive operations at the Pantex Plant, completing its implementation plan for upgrading safety assurance.
- NNSA continued its efforts to remove radioactive waste material from the Los Alamos National Laboratory. The Transuranic Throughput Improvement project resulted in a significant reduction in the radioactive material at risk in Area G at Los Alamos.
- The NNSA Service Center and Sandia Site Office completed voluntary accreditation of their technical qualification programs.
- The NNSA Chief of Defense Nuclear Safety (CDNS) reviewed and provided recommendations on the implementation of nuclear safety requirements at four NNSA site offices, following up on issues raised in the previous biennial reviews. Sites that had not performed as well as other sites in the past demonstrated significant performance improvements during these follow-ups, indicating the value of the feedback these reviews provide.
- The NNSA CDNS completed the development and acceptance of 19 training courses for nuclear safety specialists, the Federal personnel who work with our contractors to develop the safety basis for nuclear facilities. The courses are part of a broader training program that will improve the consistency and quality of safety basis documentation and controls, with a long-term positive impact on the safety of nuclear operations.
- The NNSA CDNS provided nuclear safety expertise to ensure the proper integration of safety into design for several major NNSA projects. Activities included participation on technical independent project reviews as an independent observer, reviewing and commenting on safety documentation, and development of review criteria and objectives.

Status of Board Recommendations

As of December 31, 2008, the Board had issued 50 recommendations to the Secretary of Energy since it was established in 1988. The Secretary has accepted 46 of the Board's recommendations in their entirety, and accepted four with minor exceptions and clarifications. For each accepted recommendation, the Secretary has approved the Department's implementation plan. As of December 31, 2008, 40 of the Board's recommendations have been closed.

Four recommendations were closed in calendar year 2008: Recommendation 98-1, *Resolution of Safety Issues Identified by DOE Internal Oversight* (closed March 2008); Recommendation 94-1, *Improved Schedule for Remediation* (closed April 2008); Recommendation 97-1, *Safe Storage of Uranium-233* (closed March 2008); and Recommendation 98-2, *U.S. Department of Energy Revised Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant* (closed December 2008).

The Board issued one new recommendation during 2008: Recommendation 2008-1, *Safety Classification of Fire Protection Systems*. The Secretary accepted the recommendation on March 19, 2008, and the Department provided its implementation plan on July 23, 2008. This plan describes how the Department will clarify its standards applicable to the design and operation of fire protection systems that are relied upon as a primary means of protecting the public and workers from radiological hazards at its defense nuclear facilities.

Ten recommendations remain open as of the end of calendar year 2008. The Department is working on completing corrective actions identified in its implementation plans for these recommendations. While extensive work continues to address the Board's remaining open recommendations, the Department is making progress on completing the associated implementation plans and has many ongoing safety improvement initiatives, such as revitalization of integrated safety management and integrating safety into the design process, that will further enhance the Department's ability to effectively improve safety at defense nuclear facilities. Further, the Department is continuing to make progress in its efforts to clean up hazardous materials, decommission facilities, and stabilize and consolidate nuclear materials in order to further eliminate or reduce risks.

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I. Introduction

The U.S. Department of Energy (DOE) submits this Annual Report to Congress in accordance with Section 316(b) of the Atomic Energy Act of 1954, as amended [codified at 42 U.S.C § 2286e (b)]. This Annual Report describes the Department's activities in calendar year (CY) 2008 that are related to the Defense Nuclear Facilities Safety Board (Board).

The Board is an independent executive-branch agency established by Congress in 1988 to provide advice and recommendations to the Secretary of Energy regarding public health and safety issues at the Department's defense nuclear facilities. The Board reviews and evaluates the content and implementation of health and safety standards and other requirements relating to the design, construction, operation, and decommissioning of the Department's defense nuclear facilities.

Figure 1 provides the locations of the major Department facilities involved in defense nuclear activities across the United States.

Figure 1. Location of Major Department Defense Nuclear Facilities

The Board communicates with the Department through a variety of mechanisms, including formal recommendations, formal reporting requirements, letters requesting action and information, letters providing suggestions, letters providing information (e.g., staff trip reports and reports on specific issues), requests from the Board and the Board's staff for information, public meetings, briefings, discussions, and site visits.

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

- Fully cooperate with the Board;
- Provide access to information necessary for the Board to accomplish its responsibilities;

- Thoroughly consider the recommendations and other safety information provided by the Board;
- Consistently meet commitments to the Board;
- Conduct interactions with the Board in accordance with the highest professional standards.

The remainder of this Annual Report is organized as follows:

- Section II, Key Department Safety Initiatives, describes broad-based Departmental activities affecting environment, safety, and health that are of interest to the Board.

- Section III, Implementation of Board Recommendations, describes Departmental activities completed in CY 2008 to implement Board recommendations accepted by the Secretary of Energy.

- Section IV, Other Board Interface Activities, describes Departmental activities to maintain communications and improve interaction between the Department and the Board.

This Annual Report previously included four appendices that provided detailed information. This information has been moved to the Departmental Representative's webpage as follows:

- Departmental directives of interest to the Board (https://www.hss.doe.gov/deprep/dirstatus/status.asp)

- Site visits of the Board and staff supported by the Department (https://www.hss.doe.gov/deprep/)

- Correspondence between the Board and the Department (https://www.hss.energy.gov/deprep/archive/chron/2008.asp)

- Site-specific activities and accomplishments to improve nuclear safety (https://www.hss.doe.gov/deprep/).

Appendix A contains abbreviations and acronyms used in this report.

II. Key Department Safety Initiatives

This section describes key initiatives that the Department is implementing to improve performance in ensuring public health and safety on a DOE- or program-wide basis. These activities address both safety-related issues identified by the Board and findings from self-assessments and independent oversight efforts undertaken by the Department at its defense nuclear facilities.

A. Early and Effective Integration of Safety into the Design Process

Throughout CY 2008, one of the major focus areas of the Department was to improve the integration of safety into the design process. The Office of Health, Safety and Security (HSS) worked closely with the Administrator of the National Nuclear Security Administration (NNSA) and the Under Secretaries of Energy and Science and the Office of Management, as well as the Board, to issue key documents to promote the more effective integration of safety into the design process.

In March 2008, the Department issued DOE Standard 1189, *Integration of Safety into the Design Process*, which describes the safety-in-design process philosophies to be used with the project management requirements of DOE Order 413.3A, *Program and Project Management for the Acquisition of Capital Assets*, and important facility safety criteria to be used during facility design. This standard addresses the hazard prevention and mitigation process for the design of DOE hazard category 1, 2, and 3 nuclear facilities including both radiological and chemical hazards.

To ensure that hazard prevention and mitigation are addressed in the fundamental design of a project, the standard establishes an integrated team approach to review the design at various stages and incorporate safety aspects. The role of the integrated team is to ensure that: appropriate and reasonably conservative safety structures, systems, and components are incorporated early in the design process; the project cost estimates include these structures, systems, and components; and the project risks associated with the selections are specified to support informed risk decision making by the Project Approval Authorities.

DOE-STD-1189 is to be used in tandem with a minor revision to the Departmental directive on project management, DOE Order 413.3A Chg 1, *Program and Project Management for the Acquisition of Capital Assets*, and the Guides for implementing Order 413.3A which were also issued in CY 2008. In alignment with DOE Order 413.3A Chg 1, a key aspect of integrating safety and design, as described in the standard, is early identification of project risks and communication among project team members to achieve the best facility-specific solution for these risks. This standard will minimize the potential for significant cost and schedule impacts from changing safety system design requirements late in the project lifecycle. Following the issuance of DOE-STD-1189, the DOE Office of Environmental Management (EM) and NNSA evaluated their ongoing and near-term planned new facility construction and major modifications projects and determined the extent to which the standard will be applied for each project.

On September 29, 2006, House Report 109-702, the Conference Report to accompany H.R. 511, which became P.L. 109-364, the John Warner National Defense Authorization Act for Fiscal Year 2007 was released and approved by both houses of Congress. The Conference Report, Section 3201, requested the Board and DOE to report jointly to the congressional defense committees on their efforts to improve the timeliness of issue resolution. On July 19, 2007, the joint report was issued. It identified actions both taken and planned that are intended to promote:

- Early identification of safety requirements and strategies at the conceptual and preliminary design phases of a project;
- More effective processes and protocols for the communication of issues to the Department and for tracking and management of these issues.

As a result of the joint report, senior Board and DOE staffs met quarterly in CY 2008 to discuss the most significant Board project concerns, to ensure that the issues are understood, and to ensure that appropriate progress is being made toward closure.

B. Establishment of Strengthened Quality Assurance Function

HSS serves as the Department's corporate focal point for quality assurance (QA) programs, processes, and procedures. HSS is also responsible for identifying and resolving Departmental cross-cutting QA issues and supporting line management implementation of policy and requirements for the design, procurement, fabrication, construction, and operation of Department facilities.

Formation of the Office of Quality Assurance Policy and Assistance: In April 2008, HSS established the Office of Quality Assurance Policy and Assistance within the renamed Office of Nuclear Safety, Quality Assurance, and Environment. This Office provides a single point of contact for QA policy-related issues and will improve HSS services and assistance to the DOE community. The Office of Quality Assurance Policy and Assistance mission includes establishing and maintaining QA policies, requirements, and guidance for the Department and serving as DOE's corporate resource for ensuring that products and services meet or exceed the Department's quality objectives. The Office provides assistance to Departmental elements and contractors in interpreting and implementing DOE QA requirements and in resolving QA-related issues.

Establishment of the Quality Council: As part of HSS's responsibilities under DOE Order 414.1C, *Quality Assurance*, to "serve as central point of contact for coordination within DOE, and liaison with other agencies and groups for the development of QA policy, requirements, guides, and standards" and to identify and propose "resolutions for crosscutting QA issues within the Department to improve implementation," HSS established the DOE Quality Council (Council) in CY 2008. The Council is a working group created to help DOE organizations identify and resolve QA issues, and to increase communications about QA issues and concerns. The Council will also address QA-related concerns as directed by the Secretary and/or the Deputy Secretary of Energy. The Council is an approved and chartered activity with established objectives, membership, operating procedures, and interfaces. The Council consists of DOE Federal QA experts from Headquarters program offices, Headquarters staff/support offices, and field offices who share lessons learned, improve DOE QA policies, and ensure that QA is implemented consistently across the DOE complex. The Council Chair is the Director of the Office of Quality Assurance Policy and Assistance. Representation on the Council in CY 2008 consists of members from 17 DOE Headquarters and field offices, and it is open to other organizations.

Update of the Quality Assurance Order: In June 2008, as part of the review of HSS safety directives, the Department established a team to review and revise DOE Order 414.1C, *Quality Assurance*. The revised order will update references to voluntary consensus standards, (e.g., changing NQA-1-2000, Quality Assurance Requirements for Nuclear Facility Applications (QA), to the more recent NQA-1-2008); reflect recent changes to DOE organizations; and strengthen requirements in evolving areas, such as software quality assurance (SQA). In addition, the Order promotes combining requirements to help reduce burdens on DOE and contractor staff.

Quality Assurance Guide for Projects: As part of the development of the Guides to supplement DOE Order 413.3A Chg 1, *Program and Project Management for the Acquisition of Capital Assets*, DOE Guide 413.3-2, *Quality Assurance Guide for Project Management*, was issued in June 2008. This Guide is designed to assist the Federal Project Director in implementing DOE Order 414.1C requirements and complying with DOE Order 413.3A Chg 1.

Survey on QA Implementation: In 2007, the Department developed and administered a survey on QA implementation; all of the targeted 26 Departmental elements responded to the 2007 survey. In June 2008, the Department issued a summary report analyzing the results of this survey, documenting status, and identifying examples of notable progress and areas that needed improvement. Areas of notable improvement included development and implementation of Quality Assurance Plans (QAPs) by DOE Headquarters and field offices and

contractors, a greater awareness of QA requirements by the staff and support offices, and broader implementation of the suspect counterfeit/defective items program. Areas needing improvement included staff qualifications in accordance with the DOE Functional Area Qualification Standards, maintenance of safety software inventory, flowdown of requirements to contractors and subcontractors, and independent assessments of contractor QAPs. As part of the effort to update DOE Order 414.1C, *Quality Assurance*, HSS is incorporating requirements for reporting QA implementation information.

Interface with National/International Standards Development Organizations: In CY 2008, HSS participated in meetings with the American Society of Mechanical Engineers (ASME)-sponsored Nuclear Quality Assurance (NQA) Standard Committee to gather information and keep current on ASME NQA national consensus standards and initiatives. HSS is working on several NQA-1 projects, including developing a stand-alone matrix to clarify NQA-1 QA requirements for the DOE QA 10 criteria and developing guidance on QA requirements for commercial-grade items and services. HSS also works closely with the International Atomic Energy Agency (IAEA) on developing a comparison guide between IAEA QA requirements and ASME NQA-1 requirements. The final IAEA document will aid DOE and its contractors in dealing with international suppliers of items that affect nuclear safety.

Safety Software Quality Assurance Program: The Department continues its efforts to establish a rigorous and effective safety SQA program. Safety software includes safety system software, safety and hazard analysis and design software, and safety management and administrative controls software. The Department developed a two-pronged approach for completing its upgrade of the SQA program. A Safety Software Expert Working Group, composed of subject matter experts, is being established to work with the toolbox code developers to address the remaining gaps and document the results as addendums to the gap analysis reports. The toolbox codes are a set of widely used computer codes used in safety analyses of nuclear facilities and have been reviewed for meeting safety SQA requirements. The Department had previously identified gaps in key software (toolbox) codes. In December 2008, the Department established a management plan that laid out a strategy for managing the Safety Software Central Registry, including upgrading the toolbox codes to their current versions and adding new codes, such as safety design codes. Central Registry management activities also include upgrading the Software Quality Assurance/Central Registry website to maintain an updated list of safety software used by the Department, monitoring error reporting activities by code users, and developing a communication forum for the exchange of information.

High Efficiency Particulate Air (HEPA) Filter Inspection and Testing Program: HSS manages the HEPA filter inspection and testing program for the Department. Supporting HSS, a private facility provides HEPA services for DOE at the Filter Test Facility (FTF) outside Baltimore, MD. These services include independent QA inspections and tests of HEPA filters, which are necessary because of the critical nature of the HEPA filter usage in DOE facilities for the protection of the public, workers, and the environment from radioactive material exposure. HSS monitors and trends the rejection rates of filters from the FTF tests and distributes monthly and semi-annual reports documenting the results from the FTF. The fiscal year (FY) 2007 semi-annual reports noted that the overall rejection rates of HEPA filters were significantly higher than the ten-year historical average. While the FTF successfully identified defective filters and prevented their use at DOE facilities, the increase in the rejection rate is the result of manufacturing defects. In 2008, Federal and contractor employees experienced in the use, testing, and qualification of HEPA filters developed a plan of action in response to observed increases in rejection rates. The plan of action outlined several actions that are being taken by DOE and site contractors, in conjunction with the filter manufacturers, over several months to improve the quality of filters and reduce the high rejection rates.

C. DOE Project for Reviewing its Safety Directives

In September 2007, the Secretary of Energy established a set of principles governing Departmental directives in an effort to improve the existing directives by simplifying and clarifying them, reducing any unnecessary burden, and ensuring that they fully support effective and efficient accomplishment of the Department's mission. These principles were ultimately institutionalized in January 2009 in a revision to the Department's Order 251.1C, *Departmental Directives Program*.

To implement the Secretary's principles, HSS, in cooperation with the other major program offices, launched a significant effort to systematically review the Department's safety directives managed by HSS. HSS is responsible for leading Department efforts in developing safety-related policy and is responsible for most of the Department's safety directives. In January 2008, representatives for the Under Secretaries and the Chief Health, Safety and Security Officer approved the Department's project plan for reviewing the safety directives and initiated the review effort in a phased manner. This project is expected to produce the following benefits:

- Working collaboratively with line stakeholders, satisfy the Department's needs for clear, concise directives that are not overly prescriptive or duplicative. A continual investment is needed to ensure that the safety directives are both current and consistent.
- Document the technical bases for all HSS safety directives, which will aid in future review and revision of these directives.
- Establish clear understanding of the contents of the safety directives by having HSS personnel in key leadership roles for the review and revision of all HSS safety directives.
- Provide a systems-wide approach to directives revision that will allow for more efficient and effective selection and management of safety requirements by topical area. Advantages include: (1) potential consolidation of directives and requirements, (2) clearer relationships among directives, and (3) elimination of overlapping, duplicative, and conflicting requirements.

The process established for systematic review of the safety directives includes multiple checks and balances to ensure that essential safety requirements are preserved and clarified where needed. Key process attributes include: (1) strong directives review teams with representatives of all major stakeholders and disciplines; (2) a central computer database to capture the team's decisions and their bases, including the technical bases for all directives requirements; (3) independent "red teams" to verify that project objectives have been met; (4) a top-level project leadership team to direct and guide the project and approve release of directives for DOE-wide review; and (5) the DOE-wide review and approval process, consistent with the approved DOE directives program. In addition, the process includes two separate opportunities to obtain review and input from the Defense Nuclear Facilities Safety Board.

During 2008, eleven directives review teams were established and began working on revisions to twelve DOE safety directives. The first two directives ready for DOE-wide review are revisions to DOE Manual 426.1-1A, *Federal Technical Capability Manual*, and DOE Order 425.1C, *Startup and Restart of Nuclear Facilities*. Some safety directives being reviewed have not been updated for 10 to 15 years; these include: DOE Order 5400.5, *Radiation Protection of the Public and the Environment*; DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*; and DOE Order 5480.20A, *Personnel Selection, Qualification, and Training for DOE Nuclear Facilities*. During 2009, the directive reviews initiated in 2008 are expected to be completed, and additional directive reviews will be initiated to complete this project. As this project moves toward successful completion, the Department expects to realize the ultimate benefits of this effort: improved clarity and bases for directives, improved ownership and understanding of directives, and re-emphasis of the importance of these safety requirements throughout the complex.

D. Other Nuclear Safety Policy and Assistance Activities

In addition to its work on safety in design and QA, the HSS Office of Nuclear Safety, Quality Assurance, and Environment played an essential leadership role in improving the Department's nuclear safety posture in CY 2008. In coordination with line management, HSS led several initiatives to improve nuclear safety policy and assistance and provide a better foundation for safe operations of nuclear facilities.

Nuclear Material Packaging: In accordance with the Department's 2005-1 implementation plan, HSS led a team of DOE and contractor subject matter experts and issued a new packaging and storage requirements document for nuclear materials, DOE Manual 441.1-1, *Nuclear Material Packaging Manual*, in March 2008.

Digital Instrumentation and Control: HSS is leading an effort to review DOE and other government and industry practices to assess digital instrumentation and control systems, particularly those used in safety systems, to determine whether additional DOE guidance or a DOE standard is warranted to ensure that the unique aspects of digital instrumentation and control are appropriately addressed when designing, maintaining, and operating safety systems. A working group consisting of subject matter experts from across the complex has been formed, and the first meeting was held in December 2007. HSS developed a draft standard in CY 2008, which is scheduled for completion in 2009. An important aspect of this standard will be incorporation of industry standard ANSI/ASI-84.00.01-2004 (ISA 84), *Functional Safety: Safety Instrumented Systems for the Process Industry Sector*, tailored to work with DOE's safety analysis approach.

Justifications for Continued Operations: In CY 2008, DOE's responsible program offices (e.g., EM and NNSA) worked with their site offices to ensure appropriate use of justifications for continued operations (JCOs) and limit their duration. JCOs are used to support operations when a nuclear facility deviates from its approved documented safety analysis. HSS, in coordination with the program offices, initiated a revision of DOE Guide 424.1-1A, *Implementation Guide for Use In Addressing Unreviewed Safety Question Requirements,* to better delineate the use of JCOs to promote more consistent development and use of JCOs across the complex in the future.

Validation of Safety Controls: In 2008, DOE reviewed concerns about the adequacy of established safety controls and concluded that existing requirements for the implementation of safety controls appropriately focus on holding contractors responsible for proper implementation and validation of controls, but additional guidance is needed to clarify how to perform initial and periodic validation of safety controls. DOE has begun the development of this guidance and plans to complete it in 2009.

Risk Assessment for Nuclear Safety: DOE continues efforts to develop a risk assessment policy for nuclear safety. A draft policy and an accompanying guidance document were developed by HSS in coordination with a DOE Headquarters steering committee that included representatives from EM, the Office of Science (SC), and the Chief of Nuclear Safety. DOE/HSS staff worked to refine the draft policy and guide in CY 2008. HSS will continue to work with Central Technical Authority (CTA), program office staff, and key contractors to complete development of the policy. As part of a comprehensive reevaluation of directives, the Department is also considering the appropriate promulgation mechanism for the nuclear safety risk assessment policy and its place with regard to a number of DOE risk management policy and guidance documents published or in preparation pursuant to other directives. Early in CY 2009, DOE intends to develop a plan and schedule for further development activities.

E. Integrated Safety Management Revitalization Activities

The Department remains committed to integrated safety management (ISM) as its central framework for completing work while protecting the public, workers, and the environment. ISM is the foundation of the Department's effort to improve safety performance and sustain a robust and effective safety culture. The Department's top priorities for ISM during CY 2008 and CY 2009 are: (1) improving work planning and control; (2) making "feedback and improvement" activities more effective; (3) strengthening the safety culture; (4) sustaining ISM during contract transitions; and (5) better integrating the management systems important to safety and mission accomplishment. ISM activities and accomplishments in CY 2008 are discussed in the following paragraphs.

ISM Champions: The Department's ISM Champions continue to provide leadership in its program offices, site offices, and contractors, supporting line management in developing and sustaining vital, mature ISM systems throughout the Department so that work is reliably accomplished in a safe manner. The ISM Champions Council promotes continuous learning and improvement of ISM effectiveness throughout the DOE complex through communications and the sharing of best practices and lessons learned. The Department has named two ISM

Co-Champions, one from HSS and one from NNSA representing the line programs. During CY 2008, the ISM Champions Council conducted periodic calls and meetings to share best practices and lessons learned.

ISM System Descriptions: In CY 2008, the Department completed development of ISM system descriptions at its NNSA activities. All major DOE Headquarters offices and field offices now have completed the descriptions to provide detail regarding their activities to implement the ISM core functions and guiding principles.

ISM Workshop: The Department held its CY 2008 ISM workshop in Idaho Falls, Idaho, in August 2008. It was sponsored by the DOE Idaho Operations Office and its prime contractors for the Idaho National Laboratory. This workshop was well attended, with over 600 line managers, safety professionals, presenters and track leads, ISM Champions, and other interested attendees, including representatives from other government agencies, academia, and private industry. The theme of "ISM – Building Mission Success" was selected to emphasize the central role of effective safety management in achieving mission performance. The two and a half day workshop featured five tracks of presentations on the following topics: (1) management for mission success; (2) safety culture, including human performance; (3) work planning and control; (4) contract transition; and (5) feedback and improvement.

Strengthening Safety Culture: In CY 2008, the Department continued to evaluate processes to strengthen safety culture throughout the Department. Safety culture is defined as an organization's values and behaviors, modeled by its leaders and internalized by its members that serve to make safe performance of work the overriding priority to protect workers, the public, and the environment. Safety culture is viewed as a key factor in taking ISM implementation to the next level. In CY 2008, the Department partnered with the Energy Facility Contractors Group (EFCOG) to develop a path forward by focusing on three key safety culture areas, identified based on lessons learned from other industries: leadership, employee/worker engagement, and organizational learning. As a next step, DOE is planning to explore how to identify specific improvement targets and associated behavior expectations; improve performance by developing competence in desired behaviors through training, coaching, and practicing; and ultimately, achieve successful performance and recognition that reinforces the new behaviors and underlying values. In CY 2008, significant focus was placed on how DOE contractors meet ISM requirements during the development, implementation, and assessment of the DOE voluntary protection program (VPP). Past experiences clearly demonstrate that VPP is an effective tool for contractors to engage the workers and to improve safety culture. As a result, DOE is continuing to expand participation in this program.

ISM Training: The ISM Champions upgraded and provided ISM training courses to the Senior Technical Safety Managers training program and to the Nuclear Executive Leadership Training program during CY 2008. The ISM fundamentals training course was presented in conjunction with the ISM workshop in August 2008.

ISM Directives: During CY 2008, HSS established a directives review team to update DOE Manual 450.4-1, *Safety Management System Manual*, which provides requirements to DOE offices for developing and implementing ISM system descriptions and performing annual reviews of ISM effectiveness. This directives review team is also looking at better integration of ISM requirements with those of other management system directives, such as those for QA and oversight. A revision to this central ISM directive is expected to be finalized for issuance in CY 2009.

F. Federal Technical Capability Program Activities

The DOE is committed to ensuring that employees are trained and technically capable of performing their duties. In pursuit of this objective, the Federal Technical Capability Program (FTCP) was formed with the recognition that corporate leadership and line management ownership are essential to successfully implementing a program to recruit, develop, deploy, and retain technical capability at defense nuclear facilities. The FTCP consists of senior personnel, designated as Agents, to represent DOE Headquarters and field elements with defense nuclear facility responsibilities, including the NNSA. The FTCP reports to the Deputy Secretary and is responsible for overseeing the technical qualification program (TQP). The TQP includes the safety system oversight (SSO) program, the Facility Representative program, the Senior Technical Safety Manager program, and other critical technical skills. The TQP

also conducts periodic assessments of the effectiveness of the FTCP, using internal and independent experts, and provides recommendations to senior Department officials regarding DOE technical capability.

The Department's vision, as described in its 2004-1 implementation plan, is for its technical personnel to be recognized among all Federal agencies for the excellence of its Federal staff. The 2004-1 implementation plan outlines actions DOE will take to upgrade Federal technical capabilities. In January 2007, the last open implementation plan commitment related to the FTCP was completed when Revision 1 of the FTCP corrective action plan was issued by the Deputy Secretary. Enhancements to technical capabilities as a result of FTCP efforts in CY 2008 are discussed below.

Workforce Analysis: The workforce analysis for NNSA, EM, HSS, and Headquarters offices was updated. The list of key positions in NNSA, EM, and HSS was prioritized, and staffing plans detailing actions to be taken and due dates for completion were developed.

Accreditation Process: The NNSA Service Center and Sandia Site Office completed voluntary TQP accreditation.

Facility Representative Program: The Department continued its efforts to improve Facility Representative staffing and training, as described in Section II.G below.

Safety System Oversight: DOE's SSO personnel are responsible for providing oversight for implementation of contractors' programs to ensure that critical safety systems will function as needed, if an accident occurs. The SSO Working Group, headed by the SSO sponsor, completed its review of SSO functions, responsibilities, staffing levels, and methods of performance across the complex. The results of the analysis were published in a July 2008 report that included six recommended enhancements to the SSO program. HSS is coordinating with the program and field offices to issue an SSO standard to further improve DOE's performance in this area.

DOE Career Intern Program: This two-year, corporate entry-level developmental program maximizes the use of new hiring authorities and pay flexibilities to attract and retain highly qualified, diverse technical and administrative/ management candidates. Personnel interviews were completed, and candidates were selected for the class that started in December 2008. Recruiting for the 2009 class will begin in early 2009.

FTCP Annual Report: The practice of issuing the FTCP Annual Report was re-instituted. The report for CY 2007 includes highlights of the year's accomplishments and the goals for CY 2008.

FY 2009 Operational Plan: The first Federal Technical Capability Program Operational Plan was issued in November 2008. It supports the goals of the DOE Strategic Plan and focuses on improving the overall implementation of the Program. The FY 2009 goals are to improve processes, preserve and enhance technical capability, and develop competencies. The objectives and actions under each goal provide the roadmap for success.

G. Facility Representative Program Activities

Facility Representatives are highly trained Department employees who provide effective day-to-day oversight of contractor operations at the Department's most hazardous facilities. Approximately 180 Facility Representatives around the complex provide oversight of operational activities important to mission accomplishment and worker and public safety. The Department's standard, DOE-STD-1063-2006, *Facility Representatives*, defines the duties, responsibilities, and qualifications for Department Facility Representatives. The Facility Representative program supports Department managers in ensuring that Facility Representatives are competent and technically qualified to perform their job. Key components of the program include:

- Complex-wide performance indicator reports provided to the Department's senior managers every quarter since 1999 for evaluation and feedback to improve the program;

- Designated Facility Representative Steering Committee members and sponsors at each field and major Headquarters program office to serve as management advocates for Facility Representatives;
- Periodic conference calls of the Facility Representative Steering Committee to discuss program development and operational oversight issues;
- Annual Facility Representatives Workshop to promote the sharing of lessons learned from Facility Representative programs across the complex;
- Facility Representative website (https://www.hss.energy.gov/deprep/facrep/) to provide information on the Facility Representative program, qualification standards, vacancy announcements, and other useful information for the Department's Facility Representatives.

Facility Representative of the Year: The Facility Representative of the Year award is provided annually to a Facility Representative who consistently demonstrates exceptional performance and who makes significant contributions to the safe and efficient operation of Department facilities. The 2007 Facility Representative of the Year award was presented to a Facility Representative from the Office of River Protection, Glyn Trenchard.

Annual Facility Representatives Workshop: The 2008 Annual Facility Representatives Workshop was held in Las Vegas, Nevada, from May 13 to 15, 2008. A total of 135 DOE personnel attended, representing every major program and field office. Included in the total were 53 Facility Representatives, representing a significant portion of the Department's Facility Representative community. The theme of this year's workshop was "The Leadership Role of Facility Representatives." Workshop remarks and presentations were aimed at promoting Facility Representatives' leadership qualities and their influence on contractors.

Self-Assessment and Continuous Improvement: The Department continued with its efforts to improve the Facility Representative program. Field element managers are tasked with ensuring that periodically (at least every three years) their Facility Representative programs are evaluated by field element self-assessments. During 2008, self-assessments were performed at the following Facility Representative programs: Livermore Site Office; Oak Ridge Office, Environmental Facility Representative Program; Oak Ridge Office, Science Facility Representative Program; Office of River Protection; Sandia Site Office; and West Valley Demonstration Project. These self-assessments evaluated the Facility Representative program in the areas of training and qualification, staffing, effectiveness of oversight, functional support from management, and performance assessments and feedback. Each self-assessment found the Facility Representative programs to be satisfactory, identified opportunities for improvement, and facilitated the development of corrective actions.

H. EM's Risk Reduction Efforts through Stabilization of Excess Nuclear Materials and Waste

EM's mission is safe risk reduction and cleanup of the environmental legacy of the nation's nuclear weapons program and government-sponsored nuclear energy research. The program is one of the largest, most diverse, and most technically complex environmental cleanup efforts in the world, and it includes responsibility for the cleanup of 114 sites across the country in 31 states. Three top-level program objectives establish a framework for carrying out this responsibility:

1. Safety is the highest priority – no milestone or schedule is worth an employee having a safety incident, so EM strives for a zero-accident workplace.
2. Attain and sustain 90 percent of EM's projects performing on cost and on schedule within approved baselines.
3. Develop a higher performing organization through an appropriate organizational structure that focuses on safety, leadership development, and diversity.

The challenges of EM's program include managing cleanup projects and operating facilities in a safe, secure, compliant, and cost-effective manner. The EM program manages some of the most inherently hazardous materials and is responsible for some of the nation's most crucial environmental actions. In early CY 2008, the Assistant Secretary for EM completed approval of critical project decisions for near-term baselines for all cleanup projects in the EM portfolio. These approvals were based upon completion of rigorous internal project reviews and external independent reviews.

EM completed a number of safety and technical-related initiatives in 2008. One of these is the establishment of a Standards and Quality Assurance organization. In 2008 this organization developed a Standard Review Plan (SRP) to provide standardized and consistent review criteria and expectations for performing field reviews in specific functional areas. The SRP is aligned with the requirements of DOE Order 413.3A Chg 1 and DOE-STD-1189 and includes modules that are designed to provide the programmatic, design and engineering, safety, QA, environmental, and security bases for key deliverables and decisions associated with the Critical Decision (CD) review and approval process. This office also completed over ten QA audits of design, procurement, construction, and operations at different facilities throughout the EM complex. Quality performance metrics have also been developed and implemented to track performance within EM. Additionally, EM established a Quality Assurance Corporate Board to provide consistent policy and oversight in the area of QA and a High-Level Waste (HLW) Corporate Board to provide a similar function for complex-wide HLW activities.

EM enhanced the safety posture of its activities in 2008. It improved its assessment process for the purposes of meeting the requirements of DOE Order 226.1A, *Implementation of Department of Energy Oversight Policy*, by conducting assessments of more than ten different EM sites or activities. EM continued the effort of integrating safety into the design process that it began in 2006 by issuing interim guidance on this topic. With the issuance of DOE-STD-1189, *Incorporation of Safety into the Design Process*, in March 2008, EM began the incorporation of this standard into two of its major design and construction projects that had not passed full Critical Design 3, Approve Start of Construction.

In 2008 EM initiated a Technical Authority Board to provide focus on resolution of technical issues separate from programmatic and cost drivers. Also in 2008, EM chartered an external review of the Integrated Project Team (IPT) structure of most of its capital projects. This review identified a number of areas for improvement in the implementation of IPTs. An important element in the evaluation of technical issues is the External Technical Review (ETR) process, which is focused on addressing technical risks and uncertainties. In 2008 EM completed ETRs of two major technical program areas (plutonium preparation project at the Savannah River Site and system planning for low-activity waste treatment at Hanford), and initiated a third ETR for the K-Basin Sludge Treatment Project.

EM also maintained its high level of performance in not having any overdue commitments to the Board at the end of the year, and having only one overdue item for the entire year. Additionally, both EM Headquarters and field organizations work aggressively to address the issues the Board identifies with projects in design and construction in its quarterly report to Congress.

In addition to significant gains in project management, safety management, and QA, EM is making significant progress in several other key areas: nuclear materials disposition; radioactive waste disposal; and facility/site cleanup and closure. Over the past several years, EM has completed environmental cleanup activities of legacy materials at six sites: Rocky Flats Environmental Technology Site, Fernald Environmental Management Project, Columbus Environmental Management Project, Kansas City Plant, Lawrence Livermore National Laboratory (LLNL), and the Ashtabula Site in Ohio. Some major accomplishment highlights for 2008 include:

- At the Savannah River Site (SRS), produced 225 cans of vitrified HLW and disposed of 800 cubic meters of transuranic (TRU) waste (comprising 3,136 drums) at the Waste Isolation Pilot Plant (WIPP);

- At Hanford, achieved 39 percent construction complete and 75 percent design complete on Waste Treatment and Immobilization Plant Project (WTP); the percent of design completion achieved in 2008 reflects an expanded scope to include additional engineering efforts;
- Let five new contracts, including contracts to manage radioactive waste tank farms at Hanford and SRS and a contract for management and operations activities for most of SRS;
- Initiated pretreatment of tank salt waste at SRS and processed over 140,000 gallons of tank waste;
- Attained 9 million safe man-hours in the tank waste program and 7.7 million hours without a lost-day accident at the Advanced Mixed Waste Treatment Project (AMWTP).

Nuclear Materials and Spent Nuclear Fuel: During 2008, the Department continued consolidation of surplus, non-pit plutonium from several DOE sites, most notably Hanford. More than half of the material had been shipped to SRS through the end of calendar year 2008. The Department approved a revised surplus plutonium disposition strategy that eliminates the plutonium vitrification capability and prepares plutonium for disposition using the Mixed Oxide Facility and H-Canyon facilities. DOE continues to evaluate other cost-effective alternatives for disposition of the material that the Mixed Oxide Facility cannot process. SRS received, processed, and safely stored 48 casks and drums of spent nuclear fuel from foreign research reactors, domestic research reactors, and test reactors. Hanford began deinventory of plutonium-bearing materials from the Plutonium Finishing Plant and completed processing and shipment of all found fuel and fuel scrap from the K West Basin to dry, safe, underground storage.

Radioactive Waste Management: EM made progress at all three of its defense tank waste sites. At the Idaho Nuclear Technology and Engineering Center (INTEC), DOE and its contractor filled many of the underground tank waste transfer lines with grout as part of the HLW tank farm closure process. At Savannah River, interim processing of tank salt wastes through the Integrated Salt Disposition Process began; this process separates much of the radioactivity from the tank salt waste for subsequent treatment in the existing HLW vitrification treatment facility, enabling the remaining low-activity salt solution to be made into grout and disposed of on site as a saltstone material. DOE has also deployed four retrieval technologies at Hanford that can be used for retrieving waste from aging single-shell tanks and transferring the waste to double-shell tanks.

Progress continued on three significant radioactive waste pretreatment and treatment construction projects. Authorization in 2007 to resume construction of the Pretreatment Facility and the HLW Facility, which are key facilities of the Hanford WTP, allowed for important progress on that project. DOE also approved full construction of the Sodium Bearing Waste Treatment Facility in Idaho that will treat the approximate 300,000 gallons of liquid waste remaining in the INTEC tank farms. Full construction approval was also obtained for the Salt Waste Processing Facility at SRS that will pretreat the approximate 35 million gallons of salt waste remaining in the tanks there.

Over 5,000 cubic meters of contact-handled TRU was disposed of at WIPP in 2008, as well as 190 canisters of remote-handled TRU. EM and its contractors disposed of approximately 1 million tons of low-level and mixed low-level waste in 2008. At the Oak Ridge Reservation, the Transuranic Waste Processing Center began processing high-activity remote-handled TRU waste and supported waste certification audits that will allow the treated waste to be shipped to WIPP for disposal.

I. NNSA Chief of Defense Nuclear Safety

DOE established CTA positions within the Department in response to Recommendation 2004-1, *Oversight of Complex, High-Hazard Operations*, and Task Force recommendations. The Department has established three CTAs: one in NNSA, one in the Office of the Under Secretary of Energy, and one in SC. The Principal Deputy Administrator is the CTA for NNSA.

For NNSA, the Chief of Defense Nuclear Safety (CDNS) provides technical support to the CTA in the area of nuclear safety. Beginning in 2005, CDNS initiated biennial reviews of the implementation of nuclear safety requirements at NNSA sites that have nuclear safety responsibilities. These systematic reviews provide credible, objective, value-added information to NNSA line managers by evaluating site office and contractor performance in 18 functional areas. Specific reviews are tailored to the needs of each site by adding or deleting functional areas, based on past performance and input from Headquarters and field line management.

The first series of biennial reviews was completed in 2007. In 2008, CDNS conducted follow-up reviews of the Savannah River Site Office, the Nevada Site Office, the Livermore Site Office, and the Sandia Site Office. Follow-up reviews are tailored to re-evaluate areas where weaknesses were identified during the previous reviews, and are not usually full reviews. The review of the Pantex Site Office in 2007 demonstrated continued good performance, consistent with that observed during the initial review. The reviews of the Nevada and Livermore Site Offices demonstrated marked improvements from the previous reviews. The review of the Nevada Site Office was particularly noteworthy. During the previous review, the Nevada Site Office's performance was one of the poorest in NNSA. Subsequent to the review, Nevada personnel kept in close contact with CDNS personnel while working to address issues raised during the review. In the review completed in 2008, the Nevada Site Office demonstrated performance that was on par with that of the very best performing NNSA site offices.

In 2007, CDNS conducted a biennial review of the Defense Programs organization. That review identified significant weaknesses in the general oversight of nuclear safety. In 2008, NNSA reorganized the office of Defense Programs and created an Office of Safety within Defense Programs to enhance the execution of safety responsibilities. Six experienced individuals were transferred from the CDNS organization to the new Office of Safety to form an effective nucleus around which to build a safety team. The incumbent CDNS, Mr. James McConnell, was tapped to head the new organization. Dr. Don Nichols, one of the charter members of CDNS, was assigned to lead CDNS in his place. CDNS responsibilities remain unchanged by these organizational developments.

Additional activities and accomplishments of personnel assigned to CDNS in 2008 include:

- Worked with Los Alamos Site Office to validate the material containerization and storage needs for the Chemistry and Metallurgy Research (CMR) Facility. The review supported the site office's need for a better understanding of whether further risk reductions were possible within CMR by additional reductions in material at risk.

- Completed the development and acceptance of 19 training courses for nuclear safety specialists, the Federal personnel who work with contractors to develop the safety basis for nuclear facilities. The courses are part of a broader training program that will improve the consistency and quality of safety basis documentation and controls, with a long-term positive impact on the safety of nuclear operations.

- Co-chaired the team responsible for revising the Departmental Training order, developing the first comprehensive update to this directive since 1994. Co-chaired the team responsible for upgrading the Departmental Readiness Review order, developing a comprehensive update to take advantage of lessons learned since the previous edition was published in 2003. This effort includes revising the Departmental standard for the planning and conduct of operational readiness reviews. The revised directives will formally enter the directives review and comment process shortly, with an estimated publication in 2009. Implementation activities will continue into 2009.

- Reviewed 13 new and revised directives that affected nuclear safety in support of the CTA concurrence function for nuclear safety requirements. These reviews ensure that the new or revised directives meet NNSA safety expectations for NNSA nuclear facilities.

- Processed four exemptions to nuclear safety requirements, ensuring that associated compensatory measures provided adequate protection of workers, the public, and the environment.

- Played a major role in the development, coordination, and issuance of a Departmental standard on the integration of safety into the design process. This Standard is a key nuclear safety standard that supports the early-on integration of safety into design.

- Provided nuclear safety expertise to ensure the proper integration of safety into design for several major NNSA projects. Activities included participating in Technical Independent Project Reviews as an independent observer, and reviewing and commenting on safety documentation. Provided formal advice to the acquisition executive on the readiness of the Waste Solidification Building project to advance to the next project phase. Provided formal advice to the Los Alamos Site Office regarding the acceptability of the Safety Design Strategy for the Radioactive Liquid Waste Treatment Facility Upgrade project, working with the site to improve implementation of DOE-STD-1189, *Integration of Safety into the Design Process*.

CDNS published three technical bulletins that disseminated lessons learned, clarification of CTA expectations, and official responses to nuclear safety questions from the site offices. Two of the articles featured in the bulletins were titled: Integrating Safety into Design and Construction at the New Radioactive Liquid Waste Treatment Facility at Los Alamos National Laboratory; and Unexpected Discovery of Zinc-65 Contamination Affords Opportunity to Practice Integrated Safety Management (ISM) Core Functions to Ensure Worker Safety.

J. Chief of Nuclear Safety Activities

The Under Secretaries for Energy and Science are the CTAs for their organizations. The Office of the Chief of Nuclear Safety (CNS) was created in 2006 by the Department to ensure the availability of technical expertise and to provide operational awareness necessary for the proper implementation of nuclear safety requirements by line management. The CNS and staff support the functions of the Energy and Science CTAs, including maintaining operational awareness of complex, high-hazard nuclear operations at sites under the purview of EM, the Office of Nuclear Energy (NE), and SC. CNS activities include monitoring reports, reviewing site-specific and complex-wide safety and technical documents, and conducting onsite assessments. The CNS has focused staff efforts in three strategic areas: (1) strengthening Federal nuclear safety oversight; (2) promoting technical execution of projects and programs; and (3) sponsoring cross-cutting nuclear safety initiatives. Activities and accomplishments in 2008 are discussed below.

Line Oversight: Support for line oversight activities remains the primary activity of CNS staff, focusing on the implementation of DOE Order 226.1A, *Implementation of Department of Energy Oversight Policy*. Through this support, the CNS and staff have been successful in promoting a corporate approach to nuclear safety, providing technical excellence, and facilitating mission accomplishment. Staff members assigned as leads for each of the major sites interface directly with site personnel regarding oversight schedules. CNS staff support line oversight activities with significant nuclear safety implications, providing subject matter expertise to Facility Representatives, field office staff, and Headquarters assessment teams.

Field Oversight Activities: The CNS staff performed a total of 41 field activity reviews in 2008 involving the following functional areas: Criticality Safety (6); Facility Safety/Authorization Basis (5); Facility Startup/Restart (4); Project Management (4); Quality Assurance (4); Site and Headquarters Oversight Program (7); Integrated Safety Management System (6); and Software Quality Assurance (5).

Nuclear Criticality Oversight: The CNS continues to support existing line oversight processes to ensure that criticality oversight is routine and that oversight activities verify criticality safety evaluations, challenge technical assumptions, and ensure that standards are being met. CNS and EM finalized a risk-based review schedule in December 2007. Throughout 2008, CNS staff conducted criticality safety evaluations and operational awareness visits at six major facilities.

Startup and Restart Reviews: CNS staff participated in four DOE operational readiness reviews for the following operations: (1) startup at the Interim Salt Disposition Plant at the SRS, (2) startup at the Oak Ridge National

Laboratory (ORNL) TRU Waste Processing Center, (3) restart of the Hanford K West Basin Legacy Spent Nuclear Fuel Processing Facility, and (4) decontamination and decommissioning of the High Flux Beam Reactor located at the Brookhaven National Laboratory.

WTP QA and Oversight: CNS staff will continue to dedicate a significant amount of resources to support EM and Office of River Protection (ORP) activities necessary to continue improving the WTP QA program. Efforts to date appear to be contributing to a recognizable improvement in ORP's ability to perform rigorous oversight of WTP QA implementation.

CNS staff supports EM-1.1 and the ORP at Hanford in their efforts to improve the implementation of Bechtel National, Inc.'s (BNI's) QA program and DOE's ability to oversee BNI. For example, the CNS is reviewing resolution of the issues identified by the Nuclear Regulatory Commission (NRC) in its August 2008 report on the Hanford WTP. CNS staff continued to support ORP in interpreting ASME Standard NQA-1, *Quality Assurance Requirements for Nuclear Facility Applications*, relative to BNI's identification and segregation of nonconforming black cell and hard-to-reach piping. Additionally, EM-60 and CNS staff reviewed the BNI corrective actions and new processes for procuring commercial-grade items for safety applications. CNS staff members are also overseeing the resolution of the WTP Integrated Control Network quality concerns identified by the DOE Office of the Inspector General and Office of Enforcement.

EM Technical Authority: EM is responsible for managing high-profile, mission-critical projects requiring that multiple technical disciplines be engaged at various project phases. These disciplines include nuclear design, construction, deactivation and decommissioning, groundwater and soil remediation, and stabilization, among others. EM's project review process encompasses key milestones established by DOE Order 413.3A Chg 1, *Program and Project Management for the Acquisition of Capital Assets*; DOE-STD-1189-2008, *Integration of Safety into the Design Process*; and EM's own internal business management practices. Because of the need to effectively integrate safety considerations in the project design process, CNS detailed one of its employees to EM to help formulate and implement the framework and processes of the EM Technical Authority for design, engineering, safety-in-design, and other technical aspects of all capital and major operating projects. This individual also assists EM in developing the corporate, complex-wide SRP and its review modules.

The term Technical Authority is used here to describe a focused, relational framework that has been successfully implemented by the Department of the Navy to facilitate a sound technical and safety project and programmatic decision-making process. It is a simple but formal process for effectively managing technical and safety issues and risks in a forward-looking manner. Through the Technical Authority process, accountability is established for technical decisions while ensuring the stewardship of qualified technical and safety personnel and the adequacy and consistency of technical reviews and products. The CNS staff has been assisting EM in developing the SRP review modules, the objectives of which are to provide consistent, rigorous technical guidance to support EM Headquarters CD reviews of new facility projects and technical review strategies and expectations, such as performance objectives and criteria for developing review-specific lines of inquiry.

Effective Integration of Safety into Design: The Department has a number of major projects throughout the complex at various stages of design, construction, operation, and decommissioning. For hazard category 2 nuclear facilities, it is crucial to identify the hazards and select appropriate safety controls early in the design phase to eliminate delays and costly safety-related redesign in later project phases. The CNS supports the development of DOE's safety and project management directives to ensure early integration of safety into design. CNS staff continued to support implementation of DOE-STD-1189-2008 and DOE Order 413.3A Chg 1 Implementation Guides through its review and participation in meetings and its involvement in the development of and revisions to safety directives.

Sponsoring Cross-cutting Nuclear Safety Initiatives: The CNS continued to serve as the Department's responsible manager for the Department's 2007-1 implementation plan, which addresses the in-place measurement of nuclear material in an existing process or location, such as a duct, pipe, or glovebox, without invading the component. In

addition, the CNS provided critical leadership in establishing a Seismic Lessons Learned Panel, holding an associated workshop and pursuing projects to improve seismic characterization. Further, the CNS provided leadership for QA, including providing NQA Lead Auditor Training; sponsoring the SQA Support Group for EM, NE, and SC personnel; and providing assistance in implementing SQA requirements.

CNS Staffing: During 2008, the CNS detailed one of its staff members to EM-60 to facilitate the implementation of the Technical Authority, and another to the Portsmouth Gaseous Diffusion Plant for a two-month onsite detail to assist in project management of the Depleted Uranium Hexafluoride (DUF6) facility, which is transitioning from construction to operations. This CNS staff member served as the DOE senior technical expert for depleted uranium hexafluoride conversion project activities at the Portsmouth site.

The CNS has selected an individual to fill the position of Seismic Engineer. This individual will be responsible for chairing the Seismic Lessons Learned Panel, providing technical oversight of EM's projects related to seismic design, and representing the Department in ongoing seismic projects.

A member of the EM Professional Development Corps (EMPDC) Class of 2008 also joined the CNS staff and will remain with CNS for the duration of the two-year program. The EMPDC member will continue to be exposed to various CNS activities and responsibilities while completing the EMPDC program requirements.

K. Joint Report to Congress

On September 29, 2006, House Report 109-702, the Conference Report to accompany H.R. 511, which became P.L. 109-364, the John Warner National Defense Authorization Act for Fiscal Year 2007, was released and approved by both houses of Congress. The Conference Report, Section 3201, requested the Board and DOE to report jointly to the congressional defense committees on their efforts to improve the timeliness of issue resolution. On July 19, 2007, the joint report was issued. It identified actions both taken and planned that are intended to promote:

- Early identification of safety requirements and strategies at the conceptual and preliminary design phases of a project;
- More effective processes and protocols for the communication of issues to the Department and for tracking and management of these issues.

As a result of the joint report, the senior Board and DOE staffs met quarterly in CY 2008 to discuss the most significant Board project concerns, to ensure that the issues are understood, and to ensure that appropriate progress is being made toward closure.

III. Implementation of Board Recommendations

A. Overview of Board Recommendations

Board recommendations are the most formal mechanism the Board uses to prompt action by the Department. The Board issues recommendations to the Secretary on issues or circumstances to be resolved to ensure adequate protection of the public health and safety. The Secretary is required to respond to each Board recommendation within 45 days of publication of the recommendation in the Federal Register. In addition, the Secretary must submit an implementation plan to the Board within 90 days of publication in the Federal Register of the Secretary's acceptance of the recommendation. The Department's policy is to begin implementation plan development in parallel with the development of the Department's response as outlined in DOE Manual 140.1-1B, *Interface with the Defense Nuclear Facilities Safety Board.*

The Board has issued 50 recommendations to the Secretary since the Board was established in 1988. The Secretary has accepted 46 of the Board's recommendations in their entirety, and accepted 4 with minor exceptions and clarifications. For each accepted recommendation, the Secretary has approved the Department's implementation plan. Forty of the Board's recommendations are now closed. The status of all 50 recommendations is provided in Section III.B.

The Board issued one new recommendation in 2008: Recommendation 2008-1, *Safety Classification of Fire Protection Systems*. The Board issued this recommendation to the Secretary on January 29, 2008, and the Department submitted the associated implementation plan on July 23, 2008. Details are provided in Section III.C.

Four recommendations were closed in 2008: in March, the Board agreed to the closure of Recommendation 98-1, *Resolution of Safety Issues Identified by DOE Internal Oversight*; in April, the Board agreed to the closure of Recommendation 94-1, *Improved Schedule for Remediation*, and Recommendation 97-1, *Safe Storage of Uranium-233*; and in December, the Board agreed to the closure of Recommendation 98-2, *U.S. Department of Energy Revised Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant*. These are discussed in Section III.D.

The Department has proposed closure of three recommendations, as discussed in Sections III.E and III.F.

The Department is working on implementing corrective actions identified in implementation plans for seven recommendations in addition to the newly issued one. These are discussed in Section III.G.

The Department is required to report on implementation plans that take more than one year to complete. As discussed in Section III.H, all of the implementation plans for the open recommendations have already taken, or are expected to take, more than one year to complete because of the complexity and breadth of the corrective actions.

B. Historical Perspectives on Board Recommendations

Table 1 summarizes the status of all 50 Board recommendations. This table shows the status of all open and closed recommendations, including planned dates for completing implementation plan provisions for open recommendations.

An analysis of the Board recommendations and trends indicates that, initially, Board recommendations addressed specific, highly technical, significant safety issues within the Department's activities. Over time, the Department has addressed these risks and established integrated programs to improve the Department's overall safety management process. The Department's success in these areas, combined with the Board's increased use of letters and other notification methods, has led to the issuance of fewer, but often broader, recommendations in recent years.

Table 1. Summary Status of Board Recommendations

Rec	Subject	Open	Closed	Expected Timeframe for Closure of Open Recommendations
90-1	Savannah River Operator Training		10/27/1992	
90-2	Codes and Standards		10/24/1995	
90-3	Hanford Waste Tanks		05/01/1992	
90-4	Rocky Flats Operational Readiness Reviews		02/16/1995	
90-5	Rocky Flats Systematic Evaluation Program		10/24/1995	
90-6	Rocky Flats Plutonium in the Ventilation Ducts		10/24/1995	
90-7	Hanford Waste Tanks		09/04/1996	
91-1	Safety Standards Program		10/27/1992	
91-2	Reactor Operations Management Plan		10/27/1992	
91-3	Waste Isolation Pilot Plant		10/27/1992	
91-4	Rocky Flats Building 559 Operational Readiness Review		05/01/1992	
91-5	Savannah River K Reactor Power Limits		04/07/1993	
91-6	Radiation Protection		11/08/1996	
92-1	Operational Readiness of the HB-Line at Savannah River		10/27/1992	
92-2	Facility Representatives		09/17/1996	
92-3	HB-Line Operational Readiness Reviews		02/03/1993	
92-4	Multi-Function Waste Tank Facility at Hanford	X		Secretary proposed closure on December 16, 1998. All commitments met. (See Section III.F.)
92-5	Discipline of Operations During Changes		10/24/1995	
92-6	Operational Readiness Reviews		10/24/1995	
92-7	Training and Qualification		11/05/1993	
93-1	Standards Utilization in Defense Nuclear Facilities		03/25/1999	
93-2	The Need for Critical Experiments Capability		12/31/1997	
93-3	Improving Technical Capability in Defense Nuclear Programs		11/09/1999	
93-4	Environmental Restoration Management Contracts		06/28/1996	
93-5	Hanford Waste Tanks Characterization Studies		11/15/1999	
93-6	Maintaining Access to Nuclear Weapons Expertise		04/27/1999	
94-1	Improved Schedule for Remediation		04/29/2008	
94-2	Safety Standards for Low-Level Waste		12/22/1999	

Rec	Subject	Open	Closed	Expected Timeframe for Closure of Open Recommendations
94-3	Rocky Flats Seismic and Systems Safety		05/27/1999	
94-4	Deficiencies in Criticality Safety at Oak Ridge, Y-12		03/12/1999	
94-5	Integration of Rules, Orders, and Other Requirements		06/10/1999	
95-1	Improved Safety of Cylinders Containing Depleted Uranium		12/16/1999	
95-2	Safety Management		11/21/2006	
96-1	In-Tank Precipitation System at Savannah River		03/29/2002	
97-1	Safe Storage of Uranium-233		04/29/2008	
97-2	Continuation of Criticality Safety		08/07/2003	
98-1	Resolution of Safety Issues Identified by DOE Internal Oversight		03/28/2008	
98-2	Safety Management at the Pantex Plant		12/16/2008	
99-1	Safe Storage of Pits		09/09/2005	
2000-1	Prioritization for Stabilizing Nuclear Materials	X		2009 (See Section III.G.)
2000-2	Configuration Management, Vital Safety Systems		08/08/2007	
2001-1	High-Level Waste Management at the Savannah River Site	X		2011 (See Section III.G.)
2002-1	Quality Assurance for Safety-Related Software	X		2009 (See Section III.G.)
2002-2	Weapons Laboratory Support of the Defense Nuclear Complex		11/22/2005	
2002-3	Requirements for the Design, Implementation, and Maintenance of Administrative Controls	X		Secretary proposed closure on January 4, 2007. Additional verification activities needed. (See Section III.F.)
2004-1	Oversight of Complex, High-Hazard Nuclear Operations	X		2010 (See Section III.G.)
2004-2	Active Confinement Systems	X		2009 (See Section III.G.)
2005-1	Nuclear Material Packaging	X		2009 (See Section III.G.)
2007-1	Safety-Related In Situ Nondestructive Assay of Radioactive Materials	X		TBD (See Section III.G.)
2008-1	Safety Classification of Fire Protection Systems	X		2010 (See Section III.C.)

C. New Recommendation

The Board issued one new recommendation in 2008, Recommendation 2008-1, *Safety Classification of Fire Protection Systems*. It identifies the need for standards applicable to the design and operation of fire protection systems being relied upon as a primary means of protecting the public and workers from radiological hazards at the DOE defense nuclear facilities.

The basis for this Board recommendation was that DOE's fire protection guidance documents do not include specific design and operational criteria for fire protection systems designated as safety-class or safety-significant. DOE Order 420 .1 B, *Facility Safety*, and DOE Guide 420 .1-1, *Nonreactor Nuclear Safety Design Criteria and Explosives Safety Criteria*, describe general requirements for safety-class and safety-significant systems, (e.g. redundancy and QA), but they do not provide specific guidance on how a fire protection system, such as an automatic sprinkler system, should be designed, operated, and maintained. While acknowledging that this lack of specificity and guidance does not pose an immediate safety issue, the Board noted that DOE fire protection documents do not provide sufficient design and operational criteria for fire protection systems designated as safety-class or safety-significant and that this lack of guidance makes the design of new facilities and the assessment of proposed enhancements to fire protection systems in existing facilities more difficult and time consuming.

The Secretary accepted Recommendation 2008-1 on March 19, 2008, and the Department submitted its implementation plan on July 23, 2008. A working group that includes both Headquarters program offices, the CNS, the CDNS, and representatives from multiple sites and field offices has been established, and is working on the first several actions in the Implementation Plan. The Secretary assigned the Director, HSS Office of Nuclear Safety, Quality Assurance and Environment, as the Department's responsible manager for this recommendation. The Department's implementation plan was developed consistent with ISM principles and included the following elements:

- Preparing a listing and description of fire protection systems utilized in safety-class and safety-significant applications for both existing and planned facilities;
- Identifying industry codes and standards, such as those of the NRC and Factory Mutual Global, applicable to fire protection sprinkler systems in high hazard or high value applications;
- Developing specific design and operational criteria, and issuing interim guidance for sprinkler systems used in safety-class and safety-significant applications;
- Developing specific design and operational criteria for other selected types of fire protection systems based upon the potential for these systems to be used in safety-class and safety-significant applications in the future; and
- Revising DOE Standard 1066, *Fire Protection Design Criteria*, and other affected DOE directives to incorporate the additional design and operational criteria for safety-class and safety-significant fire protection systems.

D. Closures in 2008

The Board agreed with the closure of Recommendation 94-1, *Improved Schedule for Remediation*, on April 29, 2008. This recommendation addressed the hazards and risks involving the storage of nuclear materials within the Department's defense nuclear facilities complex.

The Secretary proposed closure of Recommendation 94-1 in a June 8, 2000, letter to the Board because the Department views the scope of Recommendation 2000-1 as essentially the same as the remaining activities for Recommendation 94-1; the Department's 2000-1 implementation plan includes all remaining 94-1 activities. Accordingly, with the approval and delivery of the 2000-1 implementation plan in June 2000, the Secretary proposed closure of 94-1

to the Board because Recommendation 94-1 is essentially redundant to Recommendation 2000-1, which is being satisfactorily implemented.

The Board agreed with the closure of Recommendation 97-1, *Safe Storage of Uranium-233,* on April 29, 2008. The Board issued this recommendation on March 3, 1997. This recommendation addressed safety issues for storing the existing inventories of materials bearing unirradiated uranium-233 (U-233). The Department accepted the recommendation on April 25, 1997. The Secretary approved the implementation plan and provided it to the Board on September 29, 1997. The Secretary assigned leadership of plan implementation to a task team reporting to the Department's Assistant Secretaries for Defense Programs and EM.

The Department has an inventory of approximately two metric tons of uranium mixed or alloyed with U-233 in many different chemical and physical forms and stored under a variety of conditions throughout the complex. The largest quantities are located at the ORNL and the Idaho National Laboratory (INL), with lesser amounts at Los Alamos National Laboratory (LANL) and other sites.

All specific implementation plan commitments were completed by July 1999.

After evaluating several options, INL decided to dispose of its U-233 inventory as low-level radioactive waste. INL, with appropriate members of the Nevada Test Site staff, is evaluating the INL U-233 inventory against the waste acceptance criteria for the Nevada Test Site for possible disposal. All INL U-233 material is safely and securely managed within dry storage and will remain so until a disposition path is determined and executed.

At ORNL, Isotek Systems, LLC, was awarded a contract in 2003 to perform disposition activities for U-233 and extract isotopes for medical use. In 2005, Congress directed DOE to terminate the Medical Isotope Production and Building 3019 Complex Shutdown project at the ORNL. Congress also directed that responsibility for disposition of the U-233 be transferred to the EM program per DOE's recommendation, and provided resources for the disposition of the material stored in Building 3019. In 2007, Isotek assumed operational responsibility for Building 3019 and the materials containing U-233, and is focusing on ensuring safe and secure storage while developing processes to disposition the U-233.

The Board agreed with the closure of Recommendation 98-1, *Resolution of Safety Issues Identified by DOE Internal Oversight*, on March 28, 2008. This recommendation, issued on September 28, 1998, addressed specific weaknesses identified in the Department's processes to effectively address and resolve findings identified by its internal Office of Independent Oversight. The Secretary accepted the recommendation on November 20, 1998, and approved the Department's implementation plan on March 10, 1999. The plan identified a systematic approach for developing, tracking, reporting, and effectively resolving findings identified by the Office of Independent Oversight. This implementation plan outlined specific actions, deliverables, and milestones for establishing a consistent and disciplined approach to improving the Department's corrective action processes. It established clear roles, responsibilities, and authorities; a process for elevating disagreements up to the Secretary; senior management involvement; corrective action tracking and reporting; and verification of corrective action closure. By September 2000, the Department had completed the implementation plan's commitments.

The Board agreed with the closure of Recommendation 98-2, *U.S. Department of Energy Revised Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant*, on December 16, 2008. This implementation plan was revised and provided to the Board on September 25, 2000. Revision 1 introduced a fundamental change in the Department's approach by increasing the focus on and priority of making safety improvements applicable to multiple nuclear weapon processes. The Department continues to apply the concepts of Seamless Safety for the 21st Century (SS-21) to individual weapon processes in accordance with the Integrated Weapons Activity Schedule. However, the Department believes that major safety improvements can be gained by focusing on improved engineering controls applicable to multiple weapon programs and processes. Thus, the Department can achieve tangible improvements in safety on a near-term basis, allowing weapon project teams to focus on further eliminating or reducing hazards through process redesign, as required.

On October 25, 2002, the Department provided the Board with change 1 to revision 1 of the implementation plan. This change updated the dates of several remaining commitments and added a new commitment to accelerate SS-21 tooling for the W78 and W88 weapon systems.

On March 13, 2007, the Department provided the Board with the final deliverables and notified the Board that all implementation plan commitments were completed. The Board expressed concern that one of the deliverables, DOE Standard DOE-NA-STD-3016-2006, *Hazard Analysis Reports for Nuclear Explosive Operations*, was not being adequately implemented at the laboratories. On November 23, 2007, the NNSA plan for verifying adequate implementation of DOE-NA-STD-3016-2006 was provided to the Board. This plan called for verification to be performed in FY 2008 and a summary results report to be issued in January 2008. The report was issued in February 2008.

E. Recommendations Proposed for Closure in 2008

The Department proposed closure of Recommendation 98-2, *U.S. Department of Energy Revised Implementation Plan for Accelerating Safety Management Improvements at the Pantex Plant*, via a September 30, 2008 letter to the Board. The Board agreed with the closure of Recommendation 98-2 on December 16, 2008 (see discussion above.)

F. Recommendations Proposed for Closure Prior to 2008 but Remaining Open

The Department proposed closure of two recommendations prior to 2008 that remain open:

- 2002-3, *Requirements for the Design, Implementation, and Maintenance of Administrative Controls*.
- 92-4, *Multi-Function Waste Tank Facility at Hanford*.

2002-3, Requirements for the Design, Implementation, and Maintenance of Administrative Controls

On December 11, 2002, the Board issued Recommendation 2002-3. The Department issued its implementation plan on June 26, 2003, establishing a methodology and a course of actions that included:

- Reviewing existing requirements and guidance to determine whether supplemental guidance is needed to address safety-related administrative controls (now called specific administrative controls);
- Issuing supplemental guidance on specific administrative controls and providing training;
- Evaluating safety basis documents to determine whether existing administrative controls meet Department expectations and identifying actions to upgrade controls when necessary;
- Evaluating field implementation of specific administrative controls; and
- Strengthening Departmental processes to ensure that specific administrative controls are properly designed, implemented, and maintained.

The Department has completed all actions and commitments in the implementation plan for Board Recommendation 2002-3, including:

- Developing a Nuclear Safety Management Technical position;
- Developing training materials for contractors and Federal employees;
- Conducting reviews of facility safety bases to ensure that specific administrative controls are properly implemented; and
- Revising DOE-STD-3009-94, *Preparation Guide for U.S. DOE Nonreactor Nuclear Facility Safety Analysis Reports*, to address specific administrative controls.

The Department proposed closure of this recommendation in its January 2007 letter based upon completion of all deliverables. However, a follow-up review by the Board found that some major defense nuclear facilities had not yet fully implemented the recommendation, indicating that DOE audits and self-assessments, as specified in commitment 4.7 of the implementation plan to assess the overall effectiveness of the program, were ineffective. DOE agreed with the Board's conclusions, and DOE (NNSA, EM, and the HSS Office of Independent Oversight) have taken action to improve their assessment processes for ensuring appropriate implementation of specific administrative controls. DOE will re-evaluate the Department's implementation of specific administrative controls using the improvement assessment processes.

92-4, Multi-Function Waste Tank Facility at Hanford

Recommendation 92-4, *Multi-Function Waste Tank Facility at Hanford*, addressed safety issues at the Tank Waste Remediation System Multi-Function Waste Tank Facility project at the Hanford Site. The recommendation identified three areas of concern: project management structure, design bases (systems engineering) for the Multi-Function Waste Tank Facility, and technical and managerial competence. In developing an implementation plan to address these issues, the Department expanded the scope of its response to apply an integrated systems approach to define, plan, control, and execute the overall Hanford mission. While implementing this approach, the Department re-evaluated the need for the Multi-Function Waste Tank Facility project, canceled the project, and altered other Tank Waste Remediation System projects.

The Department completed 38 plan milestones, including all program management and site systems engineering commitments, in the original implementation plan, as well as all milestones in revision one to the implementation plan. The final implementation plan deliverable was completed and provided to the Board in July 1998. The Secretary proposed closure of Recommendation 92-4 in a December 16, 1998, letter to the Board. However, the Board has not agreed with the closure of this recommendation more than nine years after the Department proposed closure. While the specific items in the implementation plans are complete, the Board continues to focus on related areas, such as a system engineering approach to design and technical and managerial competence in managing nuclear safety. At this time, the Department and Board have not identified a mutually agreeable set of actions to achieve closure, and the Department is not actively working on an implementation plan for closure of this recommendation.

This longstanding situation indicates a need for increased management attention and coordination with the Board. The Department will initiate efforts to coordinate with the Board to develop a mutually agreeable path forward in early 2009.

G. Other Open Recommendations

In addition to the Implementation Plan for Recommendation 2008-1, the Department currently is actively working on implementation plan commitments for the Board recommendations itemized below.

In addition to the information below, Section II provides information about DOE-wide initiatives, many of which are relevant to the open recommendations.

Recommendation 2007-1, Safety-related In Situ Nondestructive Assay of Radioactive Materials

The Board issued Recommendation 2007-1 on April 25, 2007. The Secretary accepted Recommendation 2007-1 on June 28, 2007, noting that continuous improvement using in situ nondestructive assay (NDA) is warranted to support nuclear safety in various activities carried out at the Department's nuclear facilities. The Secretary approved the associated implementation plan on October 24, 2007.

The Secretary assigned the CNS as the Department's responsible manager for this recommendation. The Department's implementation plan was developed, consistent with ISM system principles, and included the following elements:

- Evaluating the condition of in situ NDA programs against evaluation criteria, which will be developed;
- Identifying good practices, both commercial and within the Department, in training and qualification, design requirements for new facilities and equipment, standards for conducting in situ NDA, implementation of standards, and oversight;
- Identifying relevant ongoing research and development activities;
- Identifying needed levels and current shortfalls in personnel capabilities and training, equipment capabilities, policy and directives, QA, and oversight;
- Establishing requirements, programs, and guidance, as needed; and
- Developing a prioritized plan for implementing the above criteria and requirements and verifying their effectiveness.

The implementation plan supports line oversight and minimizes the need for development of additional guidance. Site reviews will be integrated into existing oversight schedules using criteria review and approach documents tailored as appropriate for specific sites. The implementation plan framework uses existing industry standards to the extent possible to develop specific contract language and potential modifications to DOE Order 420.1B, *Facility Safety*.

During 2008, the Department completed the following implementation plan actions:

- 5.1.1 January 29, 2008: Identified EM defense nuclear facilities for which a criticality safety program is required (per DOE Order 420.1B) and relies upon in situ NDA.
- 5.1.2 January 30, 2008: Identified NNSA defense nuclear facilities for which a criticality safety program is required (per DOE Order 420.1B) and relies upon in situ NDA.
- 5.1.3 January 29, 2008: Prioritized list of EM defense nuclear facilities based upon criticality accident risk.
- 5.1.4 January 30, 2008: Prioritized list of NNSA defense nuclear facilities based upon criticality accident risk.
- 5.5.1 August 7, 2008: NDA Technical Support Group established that is responsible and accountable for the identification and resolution of NDA issues and communicating NDA lessons learned.

Completion of implementation of the 2007-1 plan requires more than a year to complete due to the technical complexity and widespread actions necessary to fully meet all commitments outlined in the plan. The Department estimates completion of all actions and milestones for the 2007-1 implementation plan in 2012.

Recommendation 2005-1, Nuclear Material Packaging

The Board issued Recommendation 2005-1 on March 10, 2005, recommending development of requirements for nuclear material packaging. The Secretary accepted the recommendation on May 6, 2005, and approved the associated implementation plan on August 17, 2005.

The Department's implementation plan included several interim milestones and formal deliverables, including issuance of a new packaging and storage requirements document for nuclear materials, DOE Manual 441.1-1, *Nuclear Material Packaging Manual*, which was issued in March 2008. All implementation plan commitments have been completed with the exception of the final deliverable – an integrated schedule for repackaging materials to meet DOE Manual 441.1-1. Due to the complexity of existing storage configurations, the time required to develop new storage container designs, and the time needed to develop resource-loaded site implementation plans

and consolidate them into a Department-wide plan, on October 23, 2008, the Secretary revised the completion date for the final deliverable to March 2009.

Recommendation 2004-2, Active Confinement Systems

The Board issued Recommendation 2004-2 on December 7, 2004. The recommendation addressed the benefit for the Department to change its safety policy to require active confinement ventilation systems for all new and existing hazard category 2 and 3 defense nuclear facilities with the potential for a radiological release. The Board recommended that the Department enhance and update associated Department directives and standards and evaluate all new and existing facilities in light of the new requirements.

On March 18, 2005, the Secretary accepted the recommendation. The Department developed an implementation plan and provided it to the Board on August 22, 2005. On July 12, 2006, the Department issued a revised implementation plan that addresses the Board's recommendation by committing to review all hazard category 2 and 3 defense nuclear facilities to ensure that the selected confinement strategy is properly justified and documented. In accordance with the plan, priority will be given to design and construction projects, including ongoing major modifications of existing facilities.

The first step of the review is for DOE to establish criteria to exclude certain facilities and operations from further review based on sound safety considerations. For facilities not excluded, the focus of review will be to: (a) verify that appropriate performance criteria are derived for ventilation systems; (b) verify that these systems can meet the performance criteria, if applicable; and (c) determine whether any physical modifications are necessary to enhance safety performance. The implementation plan further commits to revise DOE directives and standards to formalize the evaluation criteria and capture lessons learned.

One commitment was completed in 2008, commitment 8.5, *Based on the result of initial pilot evaluations and other ongoing reviews, the evaluation guidance will be used to develop any new or revised DOE directives or rule guidance documents*. In addition, significant progress was made toward completing commitment 8.6, *Safety Related Ventilation System Evaluation*. During 2008, NNSA completed the confinement ventilation evaluation process for 13 of 26 facilities. The evaluations for eight additional facilities are under review by the CDNS, the DOE Independent Review Panel, or NNSA Headquarters or site offices and are expected to be completed by March 2009. The remaining five facilities are either in the planning stages or may not be built. Evaluations for these facilities will be performed early enough in the design stage to ensure that 2004-2 criteria are properly addressed.

Implementation of the 2004-2 plan will require more than one year to complete due to the magnitude and scope of the actions, including site assessments and revision of Department standards and directives. The Department currently projects completion of the 2004-2 implementation plan commitments in June 2009.

Recommendation 2004-1, Oversight of Complex, High-Hazard Nuclear Operations

The Board issued Recommendation 2004-1 on May 21, 2004, noting concerns regarding a number of safety issues related to central technical authority, delegations of safety responsibilities, technical capability, nuclear safety research, lessons learned from significant external events, and ISM. The Secretary accepted the recommendation on July 21, 2004; approved the associated implementation plan on December 23, 2004; and approved revision 2 to this implementation plan on October 12, 2006.

In response to the Board's recommendation, the Department's implementation plan identified three broad areas for improvement:

- Strengthening Federal safety assurance;
- Learning from internal and external operating experience;
- Revitalizing ISM implementation.

During 2008, the Department completed the following implementation plan actions:

- In February 2008, NNSA completed implementation of the process and criteria for delegating authorities to field personnel for fulfilling assigned safety responsibilities, and for performing periodic self-assessments on assignment of responsibilities and authorities to Headquarters personnel; and completed a review of the implementation of an Operating Experience program at NNSA sites.

- In October 2008, EM completed a self-assessment on proper implementation of an Operating Experience program at EM sites.

- In November 2008, NNSA completed issuance of field ISM system descriptions.

- In December 2008, the Department provided a briefing to the Board on the Department's status in implementing the 2004-1 implementation plan.

This plan requires more than one year to complete because of the magnitude and complexity of the issues being addressed. Complex and lasting change in large organizations requires multiple years to implement and verify. The final open commitments have estimated completion dates in 2009.

Recommendation 2002-1, Quality Assurance for Safety-Related Software

The Board issued Recommendation 2002-1 on September 23, 2002. This recommendation addressed the Board's concern regarding the quality of the software used to analyze and guide safety-related decisions, the quality of software used to design or develop safety-related controls, and the proficiency of personnel using the software. In addition, the Board noted that software performing safety-related functions requires appropriate QA controls to provide adequate protection of the public, workers, and the environment.

The Secretary accepted this recommendation in November 2002 and approved the 2002-1 implementation plan in March 2003. Implementation leadership was assigned to the HSS Office of Corporate Safety Analysis.

DOE briefed the Board on the status of 2002-1 activities on October 4, 2007. At that time, the Department committed to provide the Board with a plan to address the residual actions associated with commitment 4.2.1.3 of the Department's 2002-1 implementation plan. In December 2007, the Department provided the Board a two-phased approach for addressing residual actions.

The first phase consists of a path forward that includes a plan and schedule outlining what has been accomplished to date, along with the approach that will be used to resolve the gaps identified in the toolbox code gap analysis reports to allow closure of Recommendation 2002-1. A Safety Software Expert Working Group has been established and is working with the toolbox code developers to address the remaining residual gaps and document the results as addenda to the gap analysis reports.

The second phase of the path forward includes developing a strategy on how the Safety Software Central Registry will be managed, including documenting code version changes and adding new codes, such as safety design codes. Central Registry management activities also include upgrading and enhancing the Software Quality Assurance/ Central Registry website to maintain an updated list of safety software used by the Department, monitoring error reporting activities by code users, and developing a Communication Forum to exchange information related to safety software used within the Department. The two-phased approach was jointly developed and is supported by EM, NNSA, and HSS.

The implementation of the 2002-1 plan required more than a year to complete due to the technical complexity and widespread actions necessary to fully meet all commitments outlined in the plan. The Department estimates completion of all actions and milestones for the 2002-1 implementation plan in 2009.

Meeting the intent of this Recommendation, AMWTP has properly implemented use of two DOE toolbox codes: the safety analysis MACCS2 code for dispersion modeling, and the criticality safety MCNP code for criticality modeling. Code implementation has followed standardized processes for ensuring the quality of the software used to analyze and guide safety-related decisions, the quality of software used to design or develop safety-related controls, and the proficiency of personnel using the software.

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

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

The Secretary accepted the recommendation and provided an initial implementation plan on May 18, 2001. The Board amplified its expectations for this recommendation in a May 24, 2001, letter to the Secretary. The Secretary approved and issued revision 1 to the 2001-1 implementation plan on September 14, 2001. The implementation plan was subsequently revised to reflect significant salt disposition program changes and schedule delays driven by litigation relative to the Department's process for classifying waste for disposal. Six implementation plan commitments remain open.

In 2008, significant progress was made toward meeting the commitments outlined in the implementation plan (Revision 4, July 11, 2006) for Recommendation 2001-1.

In February, the Department completed commitment 2.9, *Demonstrate the viability of the Deliquification, Dissolution, and Adjustment (DDA)*. This commitment entailed disposition of 100,000 gallons of DDA salt solution in Saltstone. On February 10, 2008, approximately 27,000 gallons of DDA salt solution were processed, and on the following day, an additional 25,000 gallons were processed. Due to higher than expected radiological readings found at the vents at the top of the vault, processing was paused until activities consistent with the site's As Low as Reasonably Achievable principles were completed. Specifically, vent filters that prevent the spread of contamination while still permitting the vent to perform its passive ventilation function were installed on February 26, 2008, and processing at Saltstone resumed. The balance of the 100,000 gallons of DDA described in the commitment was then processed, leading to completion of the commitment on February 29, 2008.

Commitment 2.10, *Demonstrate the viability of the Actinide Removal Process (ARP)*, entailed completing the first batch of waste through this process. On April 21, 2008, approximately 3,686 gallons of radioactive waste feed was transferred from Tank 49 to strike tank 1 of the process. The alpha removal process was successfully completed in accordance with the operational expectations on May 1, 2008.

Commitment 2.13, *Begin Modular CSSX (Caustic Side Solvent Extraction) Unit (MCU) radioactive operations*, commenced on May 2, 2008, when the clarified salt solution from the Actinide Removal Process was transferred to the salt solution receipt tank at the MCU facility. MCU processing of this first batch of radioactive waste feed was successfully completed on May 3. From MCU, decontaminated salt solution was transferred to Tank 50, and the high cesium stream from the MCU was transferred to the Defense Waste Processing Facility (DWPF) on May 5.

There are three remaining commitments in the Implementation Plan: return Tank 48 to waste service (2010); start up a DWPF evaporator (2011); and begin Salt Waste Processing Facility radioactive operations (2011). Completion dates for these commitments are being reevaluated, and a revision to the implementation plan is expected in 2009.

Recommendation 2000-1, Prioritization for Stabilizing Nuclear Materials

The Board issued Recommendation 2000-1 on January 14, 2000. This recommendation addressed the urgency for completing nuclear material stabilization activities that the Department previously agreed to pursue in the Recommendation 94-1 implementation plan. Recommendation 2000-1 calls for an accelerated schedule for stabilizing and repackaging high-risk, unstable special nuclear materials, spent fuel, unstable solid plutonium residues, and highly radioactive liquids that pose potential safety concerns for the public, workers, and the environment.

Revision 1 of the 2000-1 implementation plan was provided on January 19, 2001, to reflect changes in the schedule for stabilization activities at LANL as outlined in the June 2000 plan and consistent with the July 2000 letter. On July 22, 2002, the Secretary approved revision 2 of the 2000-1 implementation plan that incorporated an improved schedule for stabilization activities at LANL and SRS, as well as several previously approved milestone changes. It further designated the Chief Operating Officer in EM as the Responsible Manager for EM sites, and the NNSA Deputy Administrator for Defense Programs as the Responsible Manager for LANL and LLNL. On November 28, 2005, the Secretary approved a revision of the 2000-1 implementation plan specific to the Hanford Site to reflect new information on the techniques necessary to safely handle the sludge in the K-Basins at Hanford and appropriate contingency plans for related risks.

R00-01 120W Containerized sludge in the K West Basin will be removed and treated to meet the applicable waste acceptance criteria, with completion scheduled for November 30, 2009. A related Board Letter Commitment L07-508, "Complete Final Pass Vacuuming & Fuel Processing, Removal of Found Fuel and Fuel Scrap from K West Basin," was completed on September 25, 2008.

Due to the technical complexity and characterization of the material requiring stabilization, more than one year is needed to complete the implementation plan.

The Board was verbally notified by the Richland Operations Office in May 2008 that the November 2009 date cited above would not be met. Richland advised the Board that a new date would be established once they attain an approved CD-2 certified baseline.

H. Report on Implementation Plans Requiring More Than One Year

The Department has taken more than one year to complete most of the implementation plans for Board recommendations. The more-than-one-year timeframes are necessary for a variety of reasons, including the size and scope of issues being addressed and the challenges in accomplishing complex-wide changes. The Department routinely submits the required Congressional notification, which is also required by the Board's enabling legislation, Chapter 21, Section 315 (f)(1) of the Atomic Energy Act of 1954 [42 U.S.C. § 2286d (f)(1)] in conjunction with the Department's Annual Report to Congress on Board activities (i.e., this report). The following implementation plans for open recommendations have already required, or are expected to require, more than one year to complete:

- 92-4, *Multi-Function Waste Tank Facility at Hanford Tank Farms*;
- 2000-1, *Prioritization for Stabilizing Nuclear Materials*;
- 2001-1, *High-Level Waste Management at the Savannah River Site*;
- 2002-1, *Quality Assurance for Safety-Related Software*;
- 2002-3, *Requirements for the Design, Implementation, and Maintenance of Administrative Controls*;
- 2004-1, *Oversight of Complex, High-Hazard Nuclear Operations*;
- 2004-2, *Active Confinement Systems*;
- 2005-1, *Nuclear Material Packaging*;
- 2007-1, *Safety-Related In Situ Nondestructive Assay of Radioactive Materials*; and
- 2008-1, *Safety Classification of Fire Protection Systems.*

With the exception of the new recommendation in 2008 (2008-1), all of the above open recommendations have been previously reported as requiring more than one year for completion of implementation plan actions.

IV. Other Board Interface Activities

Within HSS, the Office of the Departmental Representative to the Board manages the Department's overall interface with the Board and provides advice and direction for resolving safety issues identified by the Board. DOE Manual 140.1-1B, *Interface with the Defense Nuclear Facilities Safety Board*, details the Department's process used to interface with the Board and the Board's staff. In addition to the activities relating to the Board outlined in the prior sections of this report, the Department interacts with the Board and its staff on several other activities to further ensure adequate protection of public and worker health and safety and the environment at the Department's defense nuclear facilities:

- Coordination of the Board's review of the Department's safety directives;
- Briefings, site visits, and other Board interactions;
- Responses to Board reporting requirements;
- Attendance and presentations at the Board's public meetings;
- Safety Issues Management System (SIMS);
- Maintenance of the information archive of Board-related documents; and
- Interface Manual.

A. Coordination of Board Review of Department Safety Directives

One of the Board's significant responsibilities is to review and evaluate the Department's safety directives and standards that apply to the design, construction, operation, and decommissioning of the Department's defense nuclear facilities. The Board reviews the body of the Department's directives (including rules, policies, notices, orders, manuals, handbooks, guides, and standards) that it has identified as "of interest" to the Board because of their applicability to public health and safety at the Department's defense nuclear facilities. Whenever the Department develops changes to the identified directives or identifies new directives potentially "of interest" to the Board, the Board is provided an opportunity to review and comment on the changes prior to approval of the changes by Department management. The Departmental Representative's office coordinates this review process with the Board to ensure that the Board and its staff are notified of each change and given an opportunity for review and comment prior to issuance or re-issuance of the directives. An up-to-date list of directives of interest to the Board is available on the Departmental Representative's website at http://www.dnfsb.gov/pub_docs/dnfsb/ooi.pdf.

B. Briefings, Site Visits, and Other Board Interactions

The Department, the Board, and the Board's staff are in regular contact to identify and resolve safety issues at the Department's defense nuclear facilities. The Department provides briefings to the Board on a regular basis in order to update the Board on the Department's progress toward resolving issues identified in Board recommendations, the Department's safety initiatives, and specific safety issues as requested by the Board. These briefings include briefings by program office and site personnel on issues specific to particular sites. In addition, HSS routinely provides briefings on its activities. For example, the HSS Office of Independent Oversight briefs the Board after inspections of defense nuclear facilities about the results of reviews of ISM elements and the functionality of essential systems at nuclear facilities.

The Board and the Board's staff regularly visit the Department's defense nuclear facilities to perform reviews of the Department's safety initiatives, safety facilities, and operations, and to attend briefings at the sites. A list of site visits made by the Board and Board's staff is available on the Departmental Representative's website (https://www.hss.doe.gov/deprep/). In addition, Department personnel conducted numerous teleconferences and video conferences to exchange information and resolve safety issues.

C. Responses to Board Reporting Requirements

The Board communicates with the Department through a variety of channels, including formal recommendations and reporting requirements, letters requesting action and information, and letters providing suggestions and information (such as staff issue reports and trip reports). Communication channels also include Board and Board's staff requests for information, public meetings, briefings and discussions, and site visits. The Board's choice of communication vehicle suggests the level of the Board's concern, with the more formal channels used for clearly-defined safety issues that require prompt attention by Departmental managers. During 2008, the Board issued 20 sets of formal reporting requirements, pursuant to Chapter 21, Section 313(d) of the Atomic Energy Act of 1954 [42 U.S.C. 2286b(d)], as shown in Table 2. Table 3 lists active reporting requirements from prior years. Table 4 lists the statutory letter commitments completed in 2008. These tables are placed at the end of Section IV.

D. Board Public Meetings

The Board holds public meetings periodically to review significant safety issues in a public forum. The Board provides advance public notice for these meetings pursuant to the provisions of the "Government in the Sunshine Act" (5 U.S.C. §552b). The Board did not conduct any public meetings in 2008.

E. Safety Issues Management System

The Department established a Department-wide commitment management tool, SIMS, in August 1995. Using this tool, the Department has reduced the number of outstanding commitments related to Board recommendations from 694 in August 1995 to 64 in mid-November 2008; this number includes 8 commitments entered in July 2008 from the implementation plan for Board Recommendation 2008-1. The total number of overdue commitments related to Board recommendations has also declined significantly, from 245 in August 1995 to 13 in mid-November 2008.

In addition to commitments and actions related to Board recommendations, SIMS is also used to manage commitments and actions related to other interactions between the Department and the Board, such as Board written requests for action or information and Department commitments in letters to the Board. In early mid-November 2008, the Department was tracking 24 open letter commitments to the Board. Only one was overdue, awaiting final approval by the Deputy Secretary for closure.

The Departmental Representative conducts qualitative and technical reviews of the Department's implementation plans and other outgoing correspondence to the Board to identify and capture Department commitments. Commitment information identified from these documents is entered into the SIMS database. Monthly summary reports on the status of commitments that are overdue and coming due in the near term are distributed to responsible Department managers, points of contact, and Secretarial Officers. Quarterly SIMS reports are also prepared to focus attention where needed. Department personnel can access detailed SIMS information and use various view, sort, and report formats via an on-line, Internet-based user interface.

F. Information Archive of Board-Related Documents

A key part of identifying, understanding, and resolving safety issues is maintaining effective communication between the Department and the Board. One of the key mechanisms to facilitate communication is regular correspondence between the Department and the Board. A large portion of the written communication involves the Board's recommendations and the associated deliverables, schedules, and reporting requirements contained in the Department's implementation plans. In addition, the Department receives trip reports detailing visits by the Board and the Board's staff to Department facilities. The Department also receives specific requests from the Board and the Board's staff for particular information or action by the Department.

The Departmental Representative maintains an information archive of all correspondence, reports, plans, assessments, and transmittals between the Department and the Board on-line at https://www.hss.energy.gov/deprep/. The website provides an efficient way for the Department to share unclassified, non-sensitive information pertaining to defense nuclear facilities activities. Consistent with DOE information security policies, information classified as Official Use Only or higher is not available on the website and is protected in accordance with applicable requirements based on its classification.

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

- Board recommendations;
- Department responses and implementation plans;
- Department letters to the Board;
- Board letters to the Department;
- Selected key letters concerning the status of recommendations;
- Policy statements from the Secretary and the Board;
- Annual Reports to Congress from the Secretary and the Board concerning Board-related matters;
- Resumes of the Board members;
- Department Manual for Interface with the Board;
- Board's staff issue reports provided to the Department by the Board; and
- Board Quarterly Reports and Annual Reports to Congress.

G. Interface Manual

The governing instruction for Departmental interaction with the Board is DOE Manual 140.1-1B. The Office of the Departmental Representative has been co-leading a DOE-wide team to revise the manual as part of the HSS project to revise and update safety directives. The team has converted the requirements and responsibilities of the manual into the format of an order and is in the process of editing the order. The team expects to conduct an internal peer review and red-team review, to be completed by early 2009. Then the Order will be processed via the Department's RevCom system to get formal Department element concurrence and the Secretary's approval. This order will:

- Ensure that the Department cooperates fully with the Board as they fulfill their responsibility under the Atomic Energy Act.
- Ensure that the Department maintains responsibility to safely manage its defense nuclear facilities.
- Ensure that the Department responds to and corrects safety concerns identified by the Board.
- Ensure the tracking of corrective actions from planning through completion.
- Present the process the Department will use to interface with the Board and its staff.

Table 2. Formal Reporting Requirements Established by the Board in 2008

Date	Reporting Requirements	Days to Report
1/17/2008	A briefing on NNSA's plans to clarify the appropriate use of bounding airborne release fractions in accident analyses at Y-12 and the plans for applying this methodology to existing and planned facilities at Y-12	90
1/18/2008	A briefing on actions NNSA has taken to correct deficiencies in the Device Assembly Facility (DAF) fire protection water supply and the schedule to improve the reliability of DAF's fire suppression systems	45
2/5/2008	A report on independent validation of line management's implementation of new or substantially revised safety basis controls is warranted for all defense nuclear facilities	90
2/6/2008	A report and briefing on the Highly Enriched Uranium Materials Facility (HEUMF) fire protection system design	90
2/22/2008	A report and briefing on DOE-STD-1189, Integration of Safety into the Design Process	60
3/5/2008	A report and briefing on the Radioactive Liquid Waste Treatment Facility (RLWTF) at the Los Alamos National Laboratory	60
3/17/2008	A report on the High Efficiency Particulate Air (HEPA) filter testing failures	60
3/20/2008	A briefing on NNSA's plans and progress with regard to the dismantlement of the B53 weapon system	60
5/16/2008	A report on continued safe operations at the Chemistry and Metallurgy Research (CMR) facility	30
6/25/2008	A briefing on the effort to improve the oversight programs for vital safety systems	90
6/25/2008	A report on performing a structural and geotechnical review of the Waste Solidification Building (WSB) to be constructed at the Savannah River Site	60
7/8/2008	A report on the measures necessary at both the Pantex site and NNSA to address the long-term fidelity of the weapon trainer units at the Pantex Plant	60
7/15/2008	A briefing on the Preliminary Documented Safety Analysis (PDSA) issues for the Waste Solidification Building (WSB) to be constructed at the Savannah River Site	Prior to approval of the Critical Decision 2/3 milestone
8/8/2008	A briefing on W76 nuclear explosive operations at the Pantex Plant	Prior to resumption of W76 operations
9/4/2008	A briefing on the Savannah River Site High Level Waste (HLW) Tanks Integrity Program inspection plan	45
9/17/2008	A report on electrical safety design deficiencies at the Plutonium Finishing Plant (PFP) and the High Level Waste (HLW) Tank Farm at Hanford	90
10/30/2008	A draft of the testimony that will be provided at the December 2008 public meeting regarding Safety into the Design and construction process	Provided no later than 11/6/2008
12/8/2008	A report on the immediate actions to be taken in response to the Los Alamos National Laboratory fire and emergency services 2008 Baseline Needs Assessments (BNA)	90
12/8/2008	A report on the plan, schedule, funding source, and progress for fully implementing the Los Alamos National Laboratory fire and emergency services 2008 Baseline Needs Assessments (BNA)	180
12/16/2008	A report on the evaluation of the disposition of findings from nuclear explosive safety (NES) Studies, NES Change Evaluations, and Operational Safety Reviews from 2003 through 2008	60

Table 3. Active Reporting Requirements Established by the Board in Prior Years

Date	Reporting Requirements	Days to Report
3/13/2007	An annual report on the annual assessment of the 9212 Complex, and the progress on the Uranium Processing Facility (UPF)	Annually
9/9/05	Briefing on the contents of the annual revision to the Pantex Nuclear Material Management Program	Annually
8/7/03 (Modified 1/28/2008)	Annual Report on the Department's Nuclear Criticality Safety Program	Annually

Table 4. Statutory Letter Commitments Completed in 2008

Letter #	Commitment Title	Date Completed
SL07-004	Briefing and annual report on the annual assessment of the 9212 Complex, and the progress on the Uranium Processing Facility (UPF)	4/3/2008
SL07-013	Report and briefing describing specific actions NNSA has taken to (1) facilitate timely and effective implementation of ongoing safety improvement initiatives for nuclear operations; (2) rapidly increase confidence in safety systems currently relied upon in operating nuclear facilities; and (3) improve the Federal oversight of safety systems at Los Alamos National Laboratory	4/10/2008
SL07-014	Report and briefing describing (1) safety rationale for continuing the operation of Chemistry and Metallurgy Research (CMR) facility at the Los Alamos National Laboratory; and (2) a detailed schedule of NNSA's actions to assure safe operations of this facility	4/10/2008
SL08-001	Briefing on NNSA's plans to clarify the appropriate use of bounding airborne release fractions in accident analyses at Y-12 and the plans for applying this methodology to existing and planned facilities at Y-12	4/29/2008
SL08-009	Briefing on NNSA's plans and progress with regard to the dismantlement of the B53 weapon system	5/1/2008
SL08-006	Report and briefing on DOE-STD-1189, Integration of Safety into the Design Process	5/19/2008
SL08-007	Report and briefing on the Radioactive Liquid Waste Treatment Facility (RLWTF) at the Los Alamos National Laboratory	6/26/2008
SL08-008	Report on the High Efficiency Particulate Air (HEPA) filter testing failures	7/23/2008
SL08-004	Report and briefing on the Highly Enriched Uranium Materials Facility (HEUMF) fire protection system design	7/29/2008
SL08-005	Report on independent validation of line management's implementation of new or substantially revised safety basis controls is warranted for all defense nuclear facilities	7/29/2008
SL08-015	Briefing on W76 nuclear explosive operations at the Pantex Plant	8/11/2008
SL08-013	Briefing on the effort to improve the oversight programs for vital safety systems	8/12/2008
SL08-002	Briefing on the actions NNSA has taken to correct deficiencies in the Device Assembly Facility (DAF) fire protection water supply and the schedule to improve the reliability of DAF's fire suppression systems	8/18/2008
SL08-012	Report on performing a structural and geotechnical review of the Waste Solidification Building (WSB) to be constructed at the Savannah River Site	9/22/2008
SL08-011	Report on the measures necessary at both the Pantex site and NNSA to address the long-term fidelity of the weapon trainer units at the Pantex Plant	9/30/2008
SL08-014	Briefing on the Preliminary Documented Safety Analysis (PDSA) issues for the Waste Solidification Building (WSB) to be constructed at the Savannah River Site	9/30/2008
SL08-016	Briefing on the Savannah River Site High Level Waste (HLW) Tanks Integrity Program inspection plan	11/17/2008

Letter #	Commitment Title	Date Completed
SL08-018	Draft of the testimony that will be provided at the December 2008 public meeting regarding safety in the design and construction process	11/17/2008
SL05-026	Briefing on the contents of the annual revision to the Pantex Nuclear Material Program Management Plan	11/20/2008
SL08-010	Report on continued safe operations at the Chemistry and Metallurgy Research (CMR) facility	12/2/2008
SL08-017	Report on electrical safety design deficiencies at the Plutonium Finishing Plant (PFP) and the High Level Waste (HLW) Tank Farm at Hanford	12/4/2008

Appendix A

Abbreviations and Acronyms

AMWTP	*Advanced Mixed Waste Treatment Project*
ASME	*American Society of Mechanical Engineers*
Board	*Defense Nuclear Facilities Safety Board*
CD	*Critical Decision*
CDNS	*Chief of Defense Nuclear Safety*
CMR	*Chemistry and Metallurgy Research*
CNS	*Chief of Nuclear Safety*
CSSX	*Caustic Side Solvent Extraction*
CTA	*Central Technical Authority*
CY	*Calendar Year*
DDA	*Deliquification, Dissolution, and Adjustment*
Department	*Department of Energy*
Departmental Representative	*Departmental Representative to the Defense Nuclear Facilities Safety Board*
DOE	*Department of Energy*
DWPF	*Defense Waste Processing Facility*
EM	*Office of Environmental Management*
EMPDC	*EM Professional Development Corps*
ETR	*External Technical Review*
FTCP	*Federal Technical Capability Program*
FTF	*Filter Test Facility*
FY	*Fiscal Year*
HEPA	*High Efficiency Particulate Air*
HLW	*High Level Waste*
HSS	*Office of Health, Safety and Security*
INL	*Idaho National Laboratory*
INTEC	*Idaho Nuclear Technology and Engineering Center*
IPT	*Integrated Project Team*
ISM	*Integrated Safety Management*
JCO	*Justification for Continued Operations*
LANL	*Los Alamos National Laboratory*
LLNL	*Lawrence Livermore National Laboratory*
NDA	*Nondestructive Assay*
NE	*Office of Nuclear Energy*
NNSA	*National Nuclear Security Administration*

NQA	*Nuclear Quality Assurance Standard*
NRC	*Nuclear Regulatory Commission*
ORNL	*Oak Ridge National Laboratory*
ORP	*Office of River Protection*
QA	*Quality Assurance*
QAP	*Quality Assurance Plan*
SC	*Office of Science*
Secretary	*Secretary of Energy*
SIMS	*Safety Issues Management System*
SQA	*Software Quality Assurance*
SRP	*Standard Review Plan*
SRS	*Savannah River Site*
SS-21	*Seamless Safety for the 21st Century*
SSO	*Safety System Oversight*
TQP	*Technical Qualification Program*
TRU	*Transuranic*
U.S.C.	*United States Code*
VPP	*Voluntary Protection Program*
WIPP	*Waste Isolation Pilot Plant*
WTP	*Waste Treatment and Immobilization Plant Project*