

TESTIMONY OF
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DEFENSE NUCLEAR FACILITIES SAFETY BOARD

SAFETY OVERSIGHT OF DEPARTMENT OF ENERGY
DEFENSE NUCLEAR FACILITIES

SUBCOMMITTEE ON STRATEGIC FORCES
HOUSE ARMED SERVICES COMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

APRIL 17, 2012

MR. CHAIRMAN AND MEMBERS OF THE SUBCOMMITTEE:

Thank you for the opportunity to testify on nuclear safety issues at defense nuclear facilities operated by the Department of Energy (DOE) and the National Nuclear Security Administration (NNSA). Clearly, this is a period of significant transition for DOE, which includes billions of dollars in construction projects and a huge portfolio of site cleanup work—in addition to ongoing mission support activities. The Board believes it is prudent to proactively address safety issues at DOE’s defense nuclear facilities to ward off threats to public health and safety and to resolve safety concerns early in the design process. The Board continues to champion the early integration of safety in design and efforts to strengthen DOE’s safety culture. Today I will provide some background on the Defense Nuclear Facilities Safety Board’s (Board) mission and how we operate, and then I will provide the Board’s assessment of outstanding safety issues related to DOE and NNSA defense nuclear facilities.

I would like to begin by posing this question: Is the DOE defense nuclear facilities complex safer now than when the Board commenced operations in the late 1980s? The answer is yes. With respect to the challenges then facing the DOE and the Board, there is no question that the defense nuclear facilities complex is in a safer posture. However, we cannot ignore the current and emerging challenges that will define the future of DOE’s defense nuclear facilities, the need for federal stewardship of this enterprise, and the federal commitment to protect the health and safety of the workers and the public. Today’s challenges of aged infrastructure, design and construction of new and replacement facilities, and the undertaking of a wide variety of new activities in defense nuclear facilities coupled with ongoing mission support activities require continued vigilance in safety oversight to assure public and worker protection.

Statutory Mission of the Board

The Board was created by Congress in 1988. Congress tasked the Board to conduct independent safety oversight of defense nuclear facilities under the control or jurisdiction of the

Secretary of Energy. The Board's mission is to recommend actions that the Secretary of Energy needs to take to ensure adequate protection of public health and safety at its defense nuclear facilities. The Atomic Energy Act of 1954, as amended, currently establishes two categories of facilities subject to Board jurisdiction: (1) those facilities under the Secretary of Energy's control or jurisdiction, operated for national security purposes that produce or utilize special nuclear materials, and (2) nuclear waste storage facilities under the control or jurisdiction of the Secretary of Energy. The Board's jurisdiction does not extend to facilities or activities associated with the Naval Nuclear Propulsion Program, transportation of nuclear explosives or materials, the U.S. Enrichment Corporation, facilities developed pursuant to the Nuclear Waste Policy Act of 1982 and licensed by the Nuclear Regulatory Commission, or any facility not conducting atomic energy defense activities.

Under its enabling statute, 42 U.S.C. § 2286 *et seq.*, the Board is responsible for independent oversight of all programs and activities impacting public health and safety within DOE's defense nuclear facility complex, which has served to design, manufacture, test, maintain, and decommission nuclear weapons and for other national security purposes. The Board is authorized to review and analyze facility and system designs, operations, practices, and events, and to make recommendations to the Secretary of Energy that the Board believes are necessary to ensure adequate protection of public health and safety, including worker safety. In this regard, the Board's actions are distinguishable from a regulator in that the Secretary may accept or reject the recommendations in whole or in part.

This principle of adequate protection is well founded in case law, and derived from Congress's belief that DOE should provide safety equivalent to that found in the commercial nuclear sector. Over the past three decades, the senior leadership of the Department of Energy has embraced the concept of adequate protection by promulgating it in rules and regulations, most recently DOE Policy 420.1, *Nuclear Safety Policy*, which states:

“It is the policy of the Department of Energy to design, construct, operate, and decommission its nuclear facilities in a manner that ensures adequate protection of workers, the public, and the environment.”

DOE’s policy, directives, and regulations treat adequate protection as the only acceptable condition. DOE’s nuclear safety policy requires that its operations be conducted such that (a) individual members of the public are provided a level of protection from the consequences of DOE operations such that individuals bear no significant additional risk to life and health to which members of the general population are normally exposed, and (b) DOE workers’ health and safety are protected to levels consistent with or better than that achieved for workers in similar industries. Per DOE’s policy, there is no provision to expose workers, the public, or the environment to greater risk based on cost or other considerations.

Under its statute, the Board must consider the technical and economic feasibility of implementing its recommended measures. Consistent with the approach taken by DOE and commercial nuclear regulations, the Board is not required to refrain from issuing a safety recommendation based on either consideration. Nonetheless, in formulating its recommendations to the Secretary of Energy, the Board is confident that it has considered the technical and economic feasibility of each of its recommendations. The Board is very mindful of the need for efficient and cost-effective solutions to safety problems at defense nuclear facilities. In evaluating the proper course of action for existing facilities that do not meet modern industry standards and design requirements, both the Board and DOE consider the entire suite of options for mitigating hazards as well as factors such as the remaining life of the facilities, schedules for replacing them, and means to mitigate disruptions to ongoing operations that may result from recommended safety improvements. But the Board has no authority to specify a particular solution; that authority is the Secretary’s alone.

Under the Board’s statute, the Secretary of Energy may “accept” a Board recommendation but make a determination that its implementation is impracticable because of

budgetary considerations or because the implementation would affect the Secretary's ability to meet the annual nuclear weapons stockpile requirements. The Secretary must report any such decision to the President and Congress. The Secretary of Energy has never made a determination that a Board Recommendation cannot be implemented due to budget impracticability. The Board believes this is strong evidence that we have executed our statute in a faithful and responsible manner.

Finally, if the Board determines that a recommendation relates to an imminent or severe threat to public health and safety, the Board is required to transmit its recommendations to the President, as well as to the Secretaries of Energy and Defense. After receipt by the President, the Board is required to make such recommendations public and transmit them to the Committees on Armed Services and Appropriations of the Senate and to the Speaker of the House.

The Board's enabling statute also requires the Board to review and evaluate the content and implementation of health and safety standards, including DOE's orders, rules, and other safety requirements, relating to the full life cycle of defense nuclear facilities, including design, construction, operation, and decommissioning. The Board must then recommend to the Secretary of Energy any specific measures, such as changes in the content and implementation of those standards that the Board believes should be adopted to ensure that public health and safety are adequately protected. The Board is also required to review the design of new defense nuclear facilities before construction begins, as well as modifications to older facilities, and to recommend changes necessary to protect health and safety. An action of the Board, or failure to act, may not, however, delay or prevent the Secretary of Energy from carrying out the construction of such a facility. The Board periodically reviews and monitors construction at these defense nuclear facilities to evaluate whether construction practices and quality assurance ensure design requirements related to nuclear safety are met.

In support of its mission, the Board may conduct investigations, issue subpoenas, hold public hearings, gather information, conduct studies, establish reporting requirements for DOE, and take other actions in furtherance of its review of health and safety issues at defense nuclear

facilities. These powers facilitate accomplishment of the Board's primary function, which is to independently oversee the safety of DOE's defense nuclear facilities. The Secretary of Energy is required to cooperate fully with the Board and provide the Board with ready access to such facilities, personnel, and information the Board considers necessary to carry out these responsibilities.

The Board does not impose requirements on DOE's capital projects or other activities. The Board operates by ensuring that DOE identifies a satisfactory set of safety requirements for a project or operation, and then evaluating DOE's application of those requirements. The safety requirements are embodied in DOE's directives and/or invoked in national consensus standards. For example, the requirement that facilities withstand seismic events and other natural phenomena hazards is a DOE requirement that is implemented in a graded fashion, including consideration of the hazard associated with the facility. The requirement to assess the probabilistic seismic hazard analysis for DOE facilities built in seismically active areas every decade is likewise a DOE requirement. Up-to-date analyses incorporate the best information available about the earthquake hazards at each site, and are vital to ensure that all DOE facilities provide adequate protection for seismic events, including existing facilities such as the Los Alamos Plutonium Facility and proposed facilities such as the Uranium Processing Facility at the Y-12 National Security Complex.

Resource Needs of the Defense Nuclear Facilities Safety Board

Now I would like to say a few words about the Board's Fiscal Year (FY) 2013 Budget Request. The President's budget request for FY 2013 includes \$29.415 million in new budget authority for the Board. This is an increase of approximately \$300,000 compared to FY 2012 and will support a staffing level of 120, which is the target that the Board has been growing toward for the past several years. Given the current pace and scope of activities in the DOE defense nuclear complex, the Board believes this level of staffing is necessary to provide sufficient independent oversight to ensure that public and worker health and safety are

adequately protected. The Board endeavors to provide its oversight in a cost-effective and efficient manner by emphasizing the early integration of safety in design, which is necessary to avoid costly redesigns and modifications of existing facilities at later times. For the Board, oversight requires the technical resources necessary to provide assurance that DOE is not at risk of a serious nuclear accident, which must be prevented to protect public and worker health and safety. Without such assurance, the American public will not support DOE's work to maintain the nation's nuclear deterrent.

The Board's budget is essentially devoted to maintaining and supporting an expert staff of engineers and scientists (most of whom have technical master's degrees or doctorates) required to accomplish our highly specialized work. Seventy-one percent of our budget request for FY 2013 is for salaries and benefits, 4 percent is for travel and transportation (essential because of the need to physically visit defense nuclear facilities), and 3 percent is for technical expert contracts. The remainder is for rent, information technology and communication expenses, security, administrative support, training, and supplies, which are largely fixed costs. In all, approximately 80 percent of the Board's obligations are directly related to technical oversight. As you will see in my assessment of safety issues in this testimony, the workload of providing health and safety oversight is growing as the defense nuclear complex evolves, and will continue for decades as DOE and NNSA continue cleanup activities and weapons operations to support DOE's national security mission.

Scope of the Board's Mission

The Board is required to provide safety oversight of increasingly complex, high-hazard operations critical to national defense, including assembly and disassembly of nuclear weapons, fabrication of plutonium pits and weapon secondaries, production and recycling of tritium, criticality experiments, subcritical experiments, and a host of activities to address the radioactive legacy of nearly 70 years of these operations. Additionally, even with DOE's decision to

suspend the Chemistry and Metallurgy Research Replacement project at Los Alamos, the Board is required to provide oversight for about \$20 billion in new construction projects.

We believe that safety serves as an enabler to DOE's mission. In the area of new design and construction, the failure to identify design flaws that could impact public and worker health and safety early in the design process can significantly increase project costs due to the cost of re-engineering and the need to make post-construction modifications to complex DOE defense nuclear facilities. Such flaws have in the past typically increased costs and delayed operations while corrections were made. With DOE's design and construction costs on the order of \$20 billion, each increase in project cost of one percent equates to an increase of about \$200 million. Consequently, the Board's Fiscal Year 2013 Budget Request provides cost-effective oversight while protecting public and worker health and safety.

In a joint report to Congress on July 19, 2007, the Board and DOE agreed that early integration of safety in design is both crucial and cost-effective, as it avoids schedule delays as compared to the case when safety issues are recognized late in the design process (or worse, after construction has commenced). In most cases, the types of safety measures needed to meet DOE's safety requirements are a small fraction of the cost of the project. The same principle applies to oversight of operations—in an effective Integrated Safety Management system, hazards are recognized while the procedure for an operation is being developed, safety controls are built into the process, and the operation is then conducted safely and efficiently. Finally, the Board ensures that new technology developed by DOE that is important to safety is fully mature and capable of performing its intended safety function.

The effort required for the Board to provide safety oversight of operations in existing defense nuclear facilities is increasing, because many existing DOE facilities are structurally unsound and the transition to new facilities is decade(s) long, requiring increased oversight of aging infrastructure. The Chemical and Metallurgy Research Facility at Los Alamos National Laboratory and the 9212 Complex at the Y-12 National Security Complex are of particular

concern because of their deficient structures and advanced age. The Board carefully evaluates the efficacy and reliability of the safety systems supporting programmatic operations in such facilities, particularly the need for safety system upgrades to ensure performance if needed until these aged facilities can be replaced. Such facilities also experience age-related operational mishaps and equipment failures that require specific safety evaluation by the Board, further increasing the Board's workload.

While the deferral of the Chemistry and Metallurgy Replacement Facility will allow the Board to suspend oversight of its design (once DOE reaches a stopping point in its design effort), the Board will need to evaluate the safety-related aspects of DOE's plan to accomplish that mission in existing facilities throughout the DOE complex. It is important to recognize DOE's ongoing operations to support the nation's nuclear deterrent will continue, and the need for effective safety oversight of them remains, even as new design projects come and go.

Impact of DOE Governance Reform Initiatives

The Board is the only agency that provides independent technical safety oversight of DOE's defense nuclear facilities. The Board remains the last line of defense to ensure DOE line management implements its safety requirements needed to ensure accidents do not happen within the defense nuclear weapons complex. The DOE-Board independent safety oversight model has yielded a positive safety performance record in DOE's defense nuclear complex since the Congress established the Board.

However, DOE is undertaking initiatives to create and test new governance models that rely more heavily on the objectivity of its line organizations for safety oversight, eliminate or streamline its directives, and eliminate or streamline contractor requirements to achieve more efficient operations. In particular, NNSA's reform initiatives are aimed at moving toward pervasive reliance on its contractors' assurance systems. The emphasis on streamlining federal safety oversight and reducing safety requirements can have the unintended consequence of

reducing safety at DOE's defense nuclear facilities. Board oversight, as defined in its statute, is an essential element in ensuring DOE's regulatory framework for safety is adequate in light of those changes. It has been necessary for the Board to devote extensive resources toward reviewing the myriad changes to safety directives that DOE is pursuing under the auspices of reform, toward evaluating the effectiveness of the contractor self-assurance systems that DOE plans to rely on for safety oversight, and toward evaluating the impacts of the associated changes in DOE's oversight organizations. Safety and efficiency need not be mutually exclusive objectives if carefully managed.

The Board issued Recommendation 2011-1, *Safety Culture at the Waste Treatment and Immobilization Plant*, which provides a framework for DOE's efforts to identify and address failed or poor safety culture at its projects and operations. The Secretary of Energy accepted this recommendation, and the Board is working with DOE on its implementation. It is imperative that DOE constantly assess and maintain a strong safety culture throughout the defense nuclear complex. This may seem like an exercise in philosophy, but the hazards posed by a failed safety culture are real and have led to disasters in American industry.

For example, the National Commission on the BP Deepwater Horizon Oil Spill and Offshore Drilling concluded that the Macondo well blowout revealed such systematic failures in risk management that they placed in doubt the safety culture of the entire industry. A key finding in the commission's January 2011 report is that fundamental reform will be needed in both the structure of those in charge of regulatory oversight and their internal decision-making process to ensure their political autonomy, technical expertise, and their full consideration of environmental protection concerns. Similarly, the report issued just last month by the National Institute for Occupational Safety and Health on federal regulatory enforcement at West Virginia's Upper Big Branch Mine South concluded that the catastrophic explosion at the mine likely could have been prevented if the Mine Safety and Health Administration had engaged in timely enforcement of the Federal Mine Safety and Health Act and applicable standards and regulations.

Likewise, the Board seeks to ensure that oversight and decision-making processes that affect safety requirements in the DOE defense nuclear complex remain strong and technically defensible. The bottom line is that a nuclear accident is unacceptable to the public and the Administration.

Nuclear Safety Issues at DOE and NNSA Defense Nuclear Facilities

The Board evaluates all of DOE's and NNSA's activities at defense nuclear facilities in the context of Integrated Safety Management. The core functions of Integrated Safety Management are straightforward and have been institutionalized in policy by DOE and NNSA in response to the Board's recommendations. They are:

- Define the scope of work
- Analyze the hazards
- Develop and implement hazard controls
- Perform work within controls, and
- Provide feedback and continuous improvement

Integrated Safety Management also institutionalizes guiding principles that form the basis for a safety-conscious and efficient organization, including:

- Balanced mission and safety priorities
- Line management responsibility for safety
- Competence commensurate with responsibility, and
- Identification of safety standards and requirements appropriate to the task at hand

Integrated Safety Management is a process-based approach in which safety considerations are built into activities as they are planned and into facilities as they are designed. It is far more effective than attempting to add safety measures after an activity is already planned

or after a facility's basic design is established. It is also far more effective than an outcome-based approach in which thorough consideration of safety only occurs after an inadequately planned activity results in an undesirable outcome. In a defense nuclear facility, that undesirable outcome could be a catastrophic event that cripples the facility and harms the workers and the public. It is critical to avoid the low-probability, high-consequence event that can cripple a facility or program. A performance-based outcome approach may appear successful on the surface, but underlying weakness in processes can lead to serious accidents and unwanted results.

When properly implemented at all levels, Integrated Safety Management results in facility designs that efficiently address hazards, operating procedures that are safe and productive, and feedback that drives continuous improvement in both safety and efficiency. Shortcomings in safety and efficiency in the operation of DOE and NNSA defense nuclear facilities can almost always be related to a failure to apply Integrated Safety Management.

I would like to highlight the following safety issues as particularly important to ensuring that the defense nuclear complex can safely accomplish its missions:

- Earthquake Hazard at Los Alamos National Laboratory
- Safety Implications of Facility Design Changes
- Overhaul and Reduction of Safety Directives
- Maintaining Adequate Safety Controls
- Storage and Disposal of Nuclear Materials

Earthquake Hazard at Los Alamos National Laboratory

A severe accident at the Plutonium Facility (PF-4) at Los Alamos National Laboratory would present a significant risk to the public, and is therefore one of the Board's greatest safety concerns. On October 26, 2009, the Board issued Recommendation 2009-2, *Los Alamos National Laboratory Plutonium Facility Seismic Safety*, which recommended actions to protect

the public from the consequences of a large earthquake and subsequent large fire at PF-4. The Board followed up by issuing Recommendation 2010-1, *Safety Analysis Requirements for Defining Adequate Protection for the Public and the Workers*, to address DOE's interpretation of its Nuclear Safety Management Rule (10 CFR Part 830) and the associated DOE standard for preparing documented safety analyses. The rule and the standard form the underpinning for ensuring adequate protection of the public at DOE's defense nuclear facilities. The standard establishes a 25 rem Evaluation Guideline for offsite exposure. If conservatively calculated accident consequences approach the Evaluation Guideline, safety controls are required to achieve adequate protection of the public by reducing offsite exposure. The Board was concerned that managers at NNSA had approved the 2008 documented safety analysis for PF-4 as compliant with the rule and the standard, when the postulated accident consequences were two orders of magnitude (factor of 100) greater than the Evaluation Guideline.

In response, NNSA took immediate actions to reduce the material at risk, combustible materials, and ignition sources. NNSA subsequently completed analyses confirming that a large earthquake will likely damage the PF-4 structure and many of its safety systems. As a result, NNSA reinforced several structural elements, including the roof. NNSA is continuing to analyze the performance of PF-4 in an earthquake, and further structural upgrades may be needed.

The Board held a public hearing in Santa Fe, New Mexico, on November 17, 2011, to discuss NNSA's plan to mitigate the remaining risks. Further analyses to determine whether the current structure of the facility can survive an earthquake must be completed. The Board is not satisfied with the slow schedule for upgrading critical safety systems to survive an earthquake, particularly the ventilation system relied on to contain radioactive material released inside the building. At this point in time, NNSA still has not clearly defined regulatory criteria and a sound technical basis that demonstrate the PF-4 safety basis will provide adequate protection for the public and workers.

Safety Implications of Facility Design Changes

Safety issues have arisen at the Hanford Waste Treatment and Immobilization Plant and the Uranium Processing Facility at the Y-12 National Security Complex as a result of DOE and its contractors altering safety-related aspects of the design without sufficient basis. Altering safety aspects of the design without adequately understanding the associated technical difficulties, complexities, or project risks involved can reduce the safety margin of the design, create new safety issues, and imperil the success of the project. Furthermore, maintaining consistency between the design and the safety analysis is the most efficient and cost-effective approach. DOE's own project management requirements provide that in a properly managed nuclear project, safety features of the design should be decided upon during the conceptual design phase, before Critical Decision 1, and revised later only when there is a solid technical basis justifying the change. In the end, each DOE defense nuclear facility must have a defensible safety basis that has identified preventive and mitigative controls that reduce the dose consequences to the public and workers to acceptable levels following an accident.

Overhaul and Reduction of Safety Directives

Robust oversight, both by line management and independent oversight organizations, is fundamental to assuring safety at defense nuclear facilities. The Board remains the last line of defense to ensure DOE line management implements safety requirements needed to prevent accidents. In pursuit of more efficient operations, DOE is undertaking initiatives to (1) create and test new governance models that rely more heavily on line organizations for safety oversight and (2) eliminate or streamline complex-wide directives and contractual requirements.

In 2011, DOE made significant changes to its directives system governing construction, operations, maintenance, and decommissioning of defense nuclear facilities. By year's end, 49 directives had been cancelled, and 53 more were revised or recertified. The Board reviewed every change made to each safety-related directive, and in many instances identified that the

proposed changes would weaken essential safety requirements. DOE retained the majority of the safety requirements in its directives system; however, some requirements that the Board believed were important for safety were removed or weakened. In other instances, the Board's input enabled DOE to strengthen key directives for startup of nuclear facilities and quality assurance programs.

The next phase of this directives overhaul is implementation of the revised directives. The Board continues to question, as it did during its May 25, 2011, public hearing, whether DOE can assure that the modified directives are adequate to maintain nuclear safety. The Board will closely monitor implementation of the modified set of safety directives in the field.

Maintaining Adequate Safety Controls

The Board has raised concerns in a number of instances where DOE and NNSA sought to use less conservative accident calculations to downgrade engineered safety systems. The Board is particularly concerned with DOE's and NNSA's reduced emphasis on following the well-established "hierarchy of controls" defined in DOE Standard 3009, *Preparation Guide for U.S. Department of Energy Nonreactor Nuclear Facility Documented Safety Analyses*. This standard dictates that engineered structures, systems, and components are to be preferred over reliance on administrative controls. Such preference is based on the uncertainty of human performance. The Board sent DOE several letters in 2010 and 2011 pointing out, and seeking the technical basis for, changes in safety philosophy and analysis that were inconsistent with DOE Standard 3009. Examples of such changes include:

- At the Tritium Facility at Lawrence Livermore National Laboratory, the contractor proposed removing the credited safety function of a glovebox that confines radioactive gases, and relying instead on an alarm to alert workers that tritium gas has been released.

- At the Y-12 National Security Complex, NNSA approved removing the analysis of chemical and toxicological hazards from the safety basis for the Highly Enriched Uranium Materials Facility, and then directed the contractor to evaluate downgrading some or all fire safety measures credited in the safety analysis, including the secondary confinement system. The Safety Design Strategy for the Uranium Processing Facility, currently in design, likewise excluded toxicological hazards from the safety analysis.
- At the Hanford Tank Farms, DOE approved downgrading the safety importance of ventilation systems that limit the accumulation of flammable gas and thereby help to prevent explosions in the high-level waste tanks.
- At the Savannah River Site's Tritium Facilities, NNSA approved downgrading engineered safety controls that would prevent large releases of tritium. The safety basis was revised to specify mitigative and administrative controls, such as requiring workers in the vicinity of the facilities to take shelter until the plume of tritium released in an accident leaves the area.

The Board is closely monitoring DOE's current effort to revise DOE Standard 3009 to ensure that it continues to specify the correct hierarchy of safety controls. The Board sees many of DOE's actions as a reduction of defense-in-depth, which should instead be strengthened in light of lessons learned from the Fukushima reactor accident in Japan and the Deepwater Horizon oil spill in the Gulf of Mexico.

Storage and Disposal of Nuclear Materials

DOE faces several challenges pertaining to defense-related nuclear wastes and surplus nuclear materials. These materials exist in many chemical and physical forms, including large inventories of plutonium, uranium, used nuclear fuel, and other highly radioactive isotopes. More materials are being added to these inventories as DOE ends Cold War era programs,

decommissions old nuclear facilities, and uncovers or produces additional wastes during site cleanup work. Three main challenges exist: (1) DOE must provide safe interim storage for these materials, (2) DOE must develop timely disposition plans to limit the risks to workers and the public, and (3) DOE must identify the facilities and infrastructure needed to complete the disposition mission.

On February 28, 2011, the Board sent a letter to DOE expressing concerns about the potential premature shutdown of the nation's only large-scale radiochemical processing facility, the Savannah River Site's H-Canyon. Shutting it down could have significant unintended safety consequences due to the orphaning of unprocessed materials. During the Board's public hearing at the Savannah River Site on June 17, 2011, DOE committed to develop a resumption plan for H-Canyon operations. Later in 2011, DOE directed the facility's contractor to use H-Canyon and the associated HB-Line facility to process up to 3.7 metric tons of plutonium materials. DOE also directed its contractor to prepare to process Sodium Reactor Experiment Fuel, one of the least stable forms currently in storage in Savannah River's L Basin.

Conclusion

I anticipate that the issues I have described are familiar to DOE, NNSA, and our Congressional oversight committees. They have been previously identified by the Board in public documents, such as letters to DOE and NNSA, reports to Congress that summarize unresolved safety issues concerning design and construction of defense nuclear facilities, reports to Congress on aging facilities, and the Board's Annual Report to Congress. These reports and documents are available for review on the Board's public web site.