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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2011

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

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NOTE: Under Committee Rules, Mr. Obey, as Chairman of the Full Committee, and Mr. Lewis, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

TAUNJA BERQUAM, JOSEPH LEVIN, JAMES WINDLE,
TYLER KRUZICH, and CASEY PEARCE, *Staff Assistants*

PART 8

NATIONAL NUCLEAR SECURITY ADMINISTRATION

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Printed for the use of the Committee on Appropriations

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ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2011

THURSDAY, MARCH 4, 2010.

NATIONAL NUCLEAR SECURITY ADMINISTRATION

WITNESSES

THOMAS P. D'AGOSTINO, UNDER SECRETARY OF ENERGY FOR NUCLEAR SECURITY AND ADMINISTRATOR OF NNSA

BRIGADIER GENERAL GARRETT HARENCAK, PRINCIPAL ASSISTANT DEPUTY ADMINISTRATOR FOR MILITARY APPLICATION, OFFICE OF DEFENSE PROGRAMS

ADMIRAL KIRKLAND H. DONALD, DIRECTOR, NAVAL NUCLEAR PROPULSION

Mr. PASTOR [presiding].

The hearing will come to order. First of all, good morning and thanks for being here. This morning, we have before us the administrator of the National Nuclear Security Administration, NNSA, Mr. Tom D'Agostino. Welcome. You have been here many times.

Mr. D'AGOSTINO. Yes, sir.

Mr. PASTOR. Welcome again.

Mr. D'AGOSTINO. Thank you, sir. Appreciate it.

Mr. PASTOR. He is a former nuclear-qualified submarine officer who has been appointed to his present position by the current administration, and he was also the Administrator in the previous administration. And this is a testament to his competence and evenhanded stewardship.

Joining him today to testify before the subcommittee are Brigadier General Garrett Harencak——

General HARENCAK. Yes, sir.

Mr. PASTOR. Good morning.

General HARENCAK. Good morning.

Mr. PASTOR [continuing]. And Admiral Kirkland Donald——

Admiral DONALD. Yes, sir. Good morning.

Mr. PASTOR [continuing]. Deputy administrator for naval reactors. They are here today to present the president's fiscal year 2011 request for the NNSA. After years of relatively flat budgets, the administration requests $11.2 billion for the NNSA, an increase of $1.3 billion or a 13 percent increase.

So, today, we look forward to discussing in detail the proposed increases for weapons and naval reactors, the 26 percent increase for nonproliferation activities which will be covered in detail in a second hearing on March 11th, maybe talked about today or at least we will interweave into the discussion today.

And so we are particularly interested in hearing the explanations for these significant increases and how the NNSA proposes to execute the expanded programs.

Mr. D'Agostino, I ask you to ensure that the hearing record, the questions for the record, and any supporting information requested by the subcommittee are delivered in final form to the subcommittee no later than 4 weeks from the time you receive them. Members who have additional questions for the record will have until close of business tomorrow to provide them to the subcommittee office.

With these opening comments, I would like to yield to our ranking member for any opening comments that he may wish to make.

Rodney.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Good morning, Mr. Administrator.

Mr. D'AGOSTINO. Good morning, sir.

Mr. FRELINGHUYSEN. It is good to see you before the committee again and knowing that you bring a lot of experience and continuity to the job. I think it is a good reflection that that choice has been made again for you to continue your work.

Mr. D'AGOSTINO. Thank you.

Mr. PASTOR. General Harencak, good to see you. Thank you for your service.

Admiral Donald, honored to be with you.

So we have got two submariners on the dais today. Oh, boy. [Laughter.]

It is a special breed.

Admiral DONALD. Go Navy. [Laughter.]

General HARENCAK. One bomber pilot.

Mr. FRELINGHUYSEN. One bomber pilot. [Laughter.]

The staff just put in front of me the whole issue of where we are going with the Joint Strike Fighter just to really continue to make my day here.

VOICE. Hopefully, we will not get vetoed this morning. [Laughter.]

Mr. FRELINGHUYSEN. I hope not. I hope not.

As the chairman has said, the administration's budget request for NNSA is $11.2 billion, a 13 percent increase over fiscal year 2010. Your people ensure the reliability and security of our nuclear weapons, support the performance of our nuclear-powered naval fleet, and fight the spread of fissile material around the world, and we are grateful for that service.

Without your work, this would be a much more dangerous world, and I thank you and your people for your expertise and dedication. That is heartfelt. Thank you.

For years, we have been hearing that our nuclear weapons infrastructure and our personnel suffer from underinvestment and neglect. Well, I am encouraged that the administration has increased investment in your mission, and more funding may be on the way to help with those—that infrastructure improvement. Our work force still needs innovative management and ideas. Those efforts come from you.

And I hope you will tell us today what ideas you have to further inspire your work force.

I support the president's position on nuclear weapons that he has articulated in recent weeks and has demonstrated in this budget that has been submitted to us. I, too, believe that we should aspire to a world free of such devices. And I, too, believe that, in order to get there, we are going to need a completely different strategic environment.

In the meantime, it falls to you gentlemen to ensure that our weapons are reliable and secure and that our naval fleets can do their jobs each and every day. These missions must not be shortchanged, and you must help us have confidence that any additional funds, whatever their sources, will be used efficiently and effectively.

Thank you, Mr. Pastor, for the time, and I yield back.

Mr. PASTOR. Thank you, Mr. Frelinghuysen.

We have a copy of your written statements, and so we will hear testimony and we will try to stay within the 5 minutes the best we can.

And so, Administrator, you are on first.

Mr. D'AGOSTINO. Thank you, sir. Thank you, Mr. Chairman, Mr. Frelinghuysen, members of the subcommittee, appreciate seeing everybody here today.

My name is Tom D'Agostino. As you know, I am the administrator for the NNSA, and I am accompanied by my two deputy administrators who run a significant portion of the NNSA, Brigadier General Harencak for defense programs, and Admiral Kirk Donald for naval reactors.

It is my real pleasure to be here. Under your leadership, Mr. Chairman, the committee has been a proponent of our programs and initiatives. We thank you for the support. And the committee's backing will be even more critical as we seek to move our programs forward to address the central components of the president's nuclear security vision.

Last year, when I appeared before you, the focus of my testimony was on the continuing transformation of an outdated, Cold War nuclear weapons complex and shifting it into a 21st century nuclear security enterprise and our initial efforts at implementing the president's announcements on securing the most vulnerable material worldwide.

Since that time, we have defined a portfolio of programs to meet the president's emerging nuclear security agenda. Our fiscal year 2011 budget request for these programs is $11.2 billion, an increase of slightly over 13 percent from the previous year.

In developing this portfolio, Secretary Chu and I worked very closely with Secretary Gates to ensure that we remain focused on meeting the Department of Defense requirements. Within our overall funding request, weapons activities increases nearly 10 percent to a level of $7 billion. Defense nuclear nonproliferation increases 26 percent to a level of $2.7 billion. And naval reactors increases by more than 13 percent to a level of $1.1 billion.

Our request can be summarized in four components that collectively ensure that we implement the president's overall nuclear security agenda as outlined in his April 2009 Prague speech and reinforced in the State of the Union Address.

First, our request describes NNSA's crucial role in implementing the president's nuclear security vision and his call to secure all vulnerable nuclear materials around the world within 4 years. The $2.7 billion request for nuclear nonproliferation programs form the heart of that vision of moving to secure material in 4 years. Nearly $560 million for global threat reduction initiative to secure vulnerable materials, over a billion dollars for our fissile material disposition program to permanently eliminate over 68 metric tons of surplus weapons-grade plutonium, and more than 200 metric tons of surplus highly enriched uranium, and over $350 million for nonproliferation and verification research and development programs to provide technical support for the president's arms control and nonproliferation agenda, including a new capability at our Nevada test site to fully integrate treaty verification and arms-control experiments.

The second component of our investment is in the tools and capabilities required to effectively manage the nuclear weapons stockpile. Based on preliminary analysis of the draft nuclear posture review, we concluded that maintaining the safety, security, and effectiveness of the enduring stockpile requires increased investments to strengthen an aging physical structure and sustain a deleted technical human capital base

Our request includes more than $7 billion to ensure that we have capabilities required to complete ongoing weapons life extension programs, to strengthen the science, technology, and engineering base, and reinvest in the scientists, technicians, and engineers who perform this mission.

These activities are consistent with NNSA's stockpile stewardship and management responsibilities as outlined in the fiscal year 2010 National Defense Authorization Act. Vice President Biden recently noted the need to invest in a modern, sustainable infrastructure that supports the full range of NNSA's missions, not just stockpile stewardship.

He stated that this investment is not only consistent with the nonproliferation agenda, it is essential to it, and that there is an emerging bipartisan consensus that now is the time to make these investments to provide the foundation for future U.S. security. A key example of that consensus was reflected in the January Wall Street Journal article by Senator Sam Nunn and Former Secretaries George Schultz, Henry Kissinger, and William Perry.

That leads me to the third component of our investment in recapitalizing our infrastructure and deterrent capability into a 21st century enterprise. As the vice president said last month, some of the facilities we use to handle uranium and plutonium date back to the days when the world's great powers were led by Truman, Churchill, and Stalin. The signs of age and decay are becoming more apparent every day.

Our request includes specific funds to continue the design of the uranium processing facility at our Y–12 facility and the construction of the chemistry and metallurgy research replacement facility at Los Alamos National Laboratory.

With respect to the naval reactor's infrastructure question, Admiral Donald will discuss later the content of the naval reactor's request including the DOD decision to address the sea-based stra-

tegic deterrent, particularly, the Ohio class ballistic missile submarine and the impact on the reactor plant development, manufacturing technologies, and the need to refuel the land-based prototype reactor.

Mr. Chairman, investing now in a modern, sustainable nuclear security enterprise is the right thing to do. Investment will support the full range of nuclear security missions to ensure the future U.S. security. A range of missions include stockpile stewardship, nonproliferation, arms control treaty verification, nuclear counterterrorism, nuclear emergency response, nuclear forensics, and the naval nuclear propulsion program.

Finally, the fourth component, one that ties all of our missions together, is our commitment to aggressive management reforms across the NNSA. With increased resources you provide us comes our increased responsibility to be effective stewards of the taxpayer's money and to ensure that NNSA is an efficient, cost-effective enterprise. We take this responsibility very seriously.

Take for example, the cost associated with our physical security posture. As you are well aware, each year the cost of these efforts have risen. We initiated a zero-base security review to implement greater efficiencies and to drive down cost while sustaining security capabilities. We recently concluded our review at the Nevada site and have identified potential areas for savings, reviews at other sites will begin soon.

Next, our supply chain management center has already saved taxpayers over $130 million, largely through e-sourcing and strategic sourcing initiatives. And you may be aware that our Kansas City plant recently won the Malcolm Baldridge Award for quality, innovations, and performance excellence.

And we are looking to implement what we have learned at the Kansas City plant at all of our other sites in what we call the Kansas City model to ensure best practices across the enterprise.

Finally, we will emphasize performance and financial accountability at all levels of our organization. In 2009, our programs met or exceeded 95 percent of their performance objectives. And over the past 2 years, NNSA successfully executed consecutive large funding increases in several nonproliferation programs while reducing the percentage of carryover, uncosted, and uncommitted balances.

Importantly for the committee's consideration, we have the people and the processes in place to initiate immediately the increased mission work included in this budget request.

Mr. Chairman, we will ensure that our stockpile, our infrastructure, and our missions are melded into a comprehensive, forward-looking strategy that protects America and its allies. These investments in nuclear security are now providing the tools to tackle a broader range of challenges. Now, we must continue to cultivate the talents of our people to use these tools effectively because our people are the key to our success.

Thank you, Mr. Chairman. I would like to ask your permission to allow Admiral Donald to give some short remarks, and we would be pleased to respond to your questions.

[The information follows:]

Statement of Thomas P. D'Agostino
Under Secretary for Nuclear Security and Administrator
National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2011 President's Budget Request
Before The
House Appropriations Committee
Subcommittee on Energy and Water Development

March 4, 2010

Thank you for the opportunity to present the Fiscal Year (FY) 2011 President's Budget Request for the National Nuclear Security Administration (NNSA). This budget request will allow the NNSA to meet its commitments to the American people to provide for nuclear deterrence, to reduce nuclear dangers around the world, and to provide the capabilities to address the broader national security challenges of the 21st century.

At this time last year, the focus of NNSA efforts was the continuing transformation of the Cold War-era weapons complex to a 21st century Nuclear Security Enterprise, and transformation of the composition and size of the U.S. nuclear weapons stockpile. Simultaneously, we were in the very early stages of defining the efforts necessary to address the President's policy statements on securing the most vulnerable nuclear materials worldwide.

During the first 14 months of the Obama Administration, we have been fully engaged with the Department of Defense (DoD) and the Interagency on the Nuclear Posture Review, and with the Department of State on a new START Agreement and a broad menu of nonproliferation agreements with our international partners.

NNSA efforts this past year defined a portfolio of programs to meet the President's nuclear security agenda for the future. The FY 2011 President's Budget Request for this portfolio is $11.2 billion, an increase of more than 13 percent from last year. In the development of this portfolio, Secretary of Energy Chu and NNSA Administrator D'Agostino worked closely with Secretary of Defense Gates and other DoD officials to ensure that we remain focused on meeting the DoD's requirements. As a result, the budget request for **Weapons Activities** increases nearly 10 percent to a level of $7 billion; Defense **Nuclear Nonproliferation** increases nearly 26 percent to a level of $2.7 billion; **Naval Reactors** increases more than 13 percent to a level of $1.1 billion; and, the request for Federal oversight and staff included in the **Office of the Administrator** account increases by 6.5 percent to a level of nearly $450 million. NNSA's budget request also includes associated outyear projections in a Future-Years Nuclear Security Program (FYNSP) that identifies resources needed to meet the continuing requirements for significant long term investments in the Nuclear Security Enterprise deliverables, capabilities and infrastructure.

The FY 2011 President's Budget Request for the NNSA can be summarized in four core components that, collectively, ensure that the NNSA implements the President's overall nuclear security agenda, introduced in his April 2009 Prague speech, re-enforced during the State of the Union Address on January 27, 2010, and will, we believe, be embodied in the soon to be completed Nuclear Posture Review.

Implementing the President's Nuclear Security Vision. The budget request highlights NNSA's crucial role in implementing President Obama's nuclear security vision, including his call for an international effort to secure all vulnerable nuclear material around the world within four years. The request for these efforts is $2.7 billion (an increase of 25.8 percent over the current year). Key nonproliferation programs reflect significant increases from last year, including;

- Nearly $560 million for the Global Threat Reduction Initiative (an increase of 68 percent over the current year) to secure vulnerable nuclear materials around the world within four years, and to provide a comprehensive approach to deny terrorist access to nuclear and radiological materials at civilian sites worldwide;

- Over $1 billion for our Fissile Materials Disposition program (an increase of 47 percent over the current year) for construction of the Mixed Oxide (MOX) Fuel Fabrication Facility and the Waste Solidification Building, design of the Pit Disassembly and Conversion Facility, and meeting our commitment to support Russian plutonium disposition activities;

- More than $590 million for Material Protection, Control, and Accounting and Second Line of Defense activities to accelerate securing nuclear materials in the Former Soviet Union and other Asian states, as well as worldwide efforts to deter, detect, and respond to nuclear smuggling events; and,

- Over $350 million for the Nonproliferation and Verification Research and Development programs (an increase of 10 percent over the current year) to provide the key technical support for the President's arms control and nonproliferation agenda.

Managing the Nuclear Weapons Stockpile. Based on a preliminary analysis of the draft Nuclear Posture Review, the Department concluded that maintaining the safety, security, and effectiveness of the nuclear deterrent without nuclear testing – especially at lower stockpile numbers – requires increased investments to strengthen an aging physical infrastructure and to sustain a depleting technical human capital base across the Nuclear Security Enterprise. As such, we are requesting more than $7 billion (an increase of 9.8 percent over the current year) in the Weapons Activities appropriation to:

- Ensure the capabilities required for stockpile management and for the completion of ongoing Life Extension Programs are available;

- Strengthen the Science, Technology, and Engineering base capabilities that underpin stockpile stewardship, without nuclear testing, as well as all other NNSA nuclear security activities; and,

- Reinvest in the scientists, technicians, and engineers who perform the mission across the Nuclear Security Enterprise.

The President's Budget Request is consistent with the principles of the Stockpile Management Program outlined by Congress in the FY 2010 National Defense Authorization Act.

Recapitalizing our Nuclear Infrastructure and Deterrent Capability. These increases represent an investment in transforming our outdated nuclear weapons complex into a 21st century Nuclear Security Enterprise. This request includes funds to continue the design of the Uranium Processing Facility at the Y-12 facility; the design and construction of the replacement for the Chemistry and Metallurgy Research facility at the Los Alamos National Laboratory; and, conceptual design for the recapitalization of Naval Reactor's Expended Core Facility at the Idaho National Laboratory. Investing in a modern, sustainable nuclear security infrastructure supports the full range of NNSA's nuclear security missions, including:

- Stockpile stewardship;
- Nuclear nonproliferation and disarmament;
- Arms control treaty monitoring;
- Nuclear forensics;
- Counterterrorism and emergency response; and,
- the nuclear Navy.

Additionally, the request supports the recent Department of Defense decision to recapitalize the sea-based strategic deterrent. The OHIO-class ballistic submarines, the most survivable leg of the nation's strategic deterrent, are reaching the end of their operational life. The request will enable Naval Reactors to continue reactor plant design and development efforts begun in 2010 for procurement of long-lead reactor plant components in 2017, in support of Navy procurement of the first OHIO-class submarine replacement in 2019. Providing the OHIO-class replacement a life-of-the-ship reactor core will require substantial advances in manufacturing technology to provide a new cladding and a new fuel system. The request also supports the refueling of a land based prototype reactor, providing a cost effective test platform for these new technologies.

Continuing NNSA Management Reforms. With the increased resources provided by the Congress comes an increased responsibility to be effective stewards of the taxpayer's money. NNSA will continue to promote proactive, sound management reforms that save money, improve the way we do business, and increase efficiency. Following are a few of the efforts already underway:

- A Zero-Based Security Review initiative has led to efficiencies in our site security programs, helping drive down those costs while sustaining core physical security capabilities.

- An Enterprise Re-engineering Team is implementing ideas for improving the way NNSA does business, such as:

    - A Supply Chain Management Center has already saved the taxpayers more than $130 million since its inception in 2007 and is expanding its focus. Two key elements of the Center are:
        - eSourcing -- an electronic sealed-bidding and reverse auction function; and,
        - Strategic Sourcing – where our Management and Operating contractors use their combined purchasing power to negotiate multi-site commodity contracts with vendors.

    - A moratorium on new, NNSA-initiated Reviews and re-direction of those resources to improve Contractor Management Systems and operations and oversight across the Nuclear Security Enterprise.

    - Issuing new NNSA Operating Principles to guide the priorities and decision processes of entities that perform NNSA work consistently across the Nuclear Security Enterprise.

    - Applying a new performance-based model, best business practices, and lessons-learned across the Nuclear Security Enterprise. The model, pioneered at our Kansas City Plant, provides greater contractor flexibility and accountability; better focused, risk-based oversight; eliminates redundant and non-value-added reviews; and, improves efficiencies and availability of Federal and contractor resources to support the full scope of NNSA missions.

    - Reducing contractor expenses through renegotiation of health and dental plans, using common contracts for administration and supplies, and converting plant shifts for five 8-hour days to four 10-hour day shifts.

- Retaining the critical Federal workforce

    - Piloting for the Department a five-year Office of Personnel Management Demonstration Project on Pay-for-Performance and Pay Banding to test new Human Resource concepts to recruit and retain a high caliber staff by providing faster pay progression for high-performing employees, and to build on the workforce planning system to better identify competency needs and gaps.

    - Conducting a Future Leaders Program and sponsoring Historically Black Colleges and Universities, Hispanic Serving Institutions, Native American Serving Institutions, and other intern and fellowship programs to bring into government the best and brightest talent in science, engineering, business, and other technical positions to ensure that when our aging workforce retires, it is replaced with competent, well-trained, and experienced professionals to carry on the mission work of the NNSA.

Finally, NNSA continues to emphasize performance and financial accountability at all levels of our operations. NNSA needs to assure the Committee and the taxpayers that the we are an excellent steward of the programs and funds the Congress entrusts to us to carry out the President's nuclear security vision. In 2009, NNSA met 95 percent of its stated program performance objectives, and, over the past two years, NNSA successfully executed consecutive, large annual funding increases in several of our nonproliferation programs while reducing uncosted, uncomitted balances. We are ready to meet the challenge of executing the additional program increases supported by the FY 2011 President's Budget Request. Our Federal and contractor staff and our contracting processes are in place to initiate immediately the increased mission work both in the U.S. and abroad. The NNSA will be a leader in successful program and financial execution for the Department of Energy and for the U.S. Government.

The NNSA is not operating on a "business-as-usual" basis. The budget request represents a comprehensive approach to ensuring the nuclear security of our Nation. NNSA will ensure that our strategic posture, our nuclear weapons stockpile, and our infrastructure, along with our nonproliferation, arms control, emergency response, counterterrorism, and naval propulsion programs, are melded into one comprehensive, forward-looking strategy that protects America and its allies.

Maintaining the nuclear weapons stockpile is the core work in the NNSA. However, the science, technology, and engineering capabilities, which enable the core work, must also continue to focus on providing a sound foundation for ongoing nonproliferation and other threat reduction programs. The investment in nuclear security is providing the tools that can tackle a broad array of national security and energy challenges and in other realms. NNSA now has the tools, but must continue to cultivate the talents of the people to use them effectively.

The NNSA is developing the next generation of scientists, engineers, and technicians required to meet our enduring deterrence requirements as well as the critical work in nonproliferation, nuclear counterterrorism, and forensics. People are ultimately our most important resource. We are working closely with our national laboratories to develop and retain the necessary cadre of the best and the brightest to successfully carry out all of our technically challenging programs into the foreseeable future.

Following are more detailed descriptions of each of the four specific NNSA appropriations.

National Nuclear Security Administration
Budget Overview

The President's Budget Request for the NNSA contains budget information for five years as required by Section 3253 of P.L. 106-065, entitled Future-Years Nuclear Security Program (FYNSP). The FYNSP projects $57.9 billion for NNSA programs through FY 2015. While the funding necessary to support the President's commitment to lead an international effort to secure vulnerable nuclear materials throughout the world is focused in the near term, major longer term funding commitments are needed in other NNSA programs. The Secretaries of the Department of Defense (DoD) and the Department of Energy (DOE) agree that it is necessary to modernize the nuclear security infrastructure of the U.S., and this will require the investments over the long-term reflected in the FYNSP. Modernization of the infrastructure, including major capital projects, is needed to ensure safe, secure, sustainable and cost-effective operations in support of scientific and manufacturing activities. It is also necessary to bolster key scientific, technical and manufacturing capabilities needed to ensure that the U.S. nuclear weapons stockpile remains safe, secure and effective while avoiding the requirement for new nuclear tests. Increased outyear resources are also included for major new deliverables in support of the nuclear navy, including reactor plant development for the OHIO-class replacement submarine, core manufacturing for and refueling of the technology demonstration land-based prototype, and initial planning for the recapitalization of spent nuclear fuel infrastructure.

NNSA Program Summaries
The FY 2011 President's Budget Request for the NNSA is $11.2 billion, a 13.4 percent increase over the FY 2010 appropriated level. Outyear projections meet the requirements for significant long-term investments in the nuclear security enterprise deliverables, capabilities and infrastructure.

Weapons Activities Appropriation
The request for this appropriation is $7.0 billion; an increase of 9.8 percent over the FY 2010 appropriated level. This level is sustained and increased in the later outyears.

Although no change to the existing program budget structure within this appropriation is proposed in this budget, we will address the current programs within the Weapons Activities appropriation in four related components:

- Stockpile Support (Directed Stockpile Work, Readiness Campaign);
- Science, Technology and Engineering (Science Campaign, Engineering Campaign, Inertial Confinement Fusion and High Yield Campaign, Advanced Simulation and Computing Campaign, Science, Technology and Engineering Capability);
- Infrastructure (Readiness in Technical Base and Facilities, Secure Transportation Asset, Facilities and Infrastructure Recapitalization Program, Site Stewardship); and,
- Security and Nuclear Counterterrorism (Defense Nuclear Security, Cyber Security, Nuclear Counterterrorism Incident Response).

Increased funding is requested for programs in Stockpile Support, for Scientific, Technology and Engineering activities related to maintenance assessment and certification capabilities for the stockpile, and for critical Infrastructure improvements. The Security and Nuclear Counterterrorism component decreases about 3 percent from the FY 2010 appropriated levels, attributable to continuing efficiencies in the Defense Nuclear Security programs budget.

This multi-year increase reflects the President's commitment to maintain the safety, security and effectiveness of the nuclear deterrent without underground nuclear testing, consistent with the principles of the Stockpile Management Program outlined in Section 3113 (a)(2) of the National Defense Authorization Act of Fiscal Year 2010 (50 U.S.C. 2524). The nuclear security requirements driving this budget request include improvements to the safety and security of the enduring stockpile; a strengthened science, technology, and engineering base; and a recapitalized physical infrastructure. The enterprise must also be responsive to an arguably more complex future national defense environment than the singular Cold-War context within which the legacy deterrent was built.

The President's Budget Request provides funding necessary to protect and advance the scientific capabilities at the U.S. national security laboratories – including the ability to maintain the nuclear deterrent as well as development and engineering expertise and capabilities—through a stockpile stewardship program that fully exercises these capabilities.

This budget request is responsive to FY 2010 Congressional direction to carry out a Stockpile Management Program in support of stockpile stewardship that provides for effective management of the weapons in the nuclear weapons stockpile. This program will strengthen the stockpile activities, including life extension programs and surveillance; strengthen science, technology and engineering, including the workforce; and modernize the aging infrastructure, particularly special nuclear materials capabilities. The key objectives of the Stockpile Management Program include:

- Increase the reliability, safety, and security of the stockpile;
- Further reduce the likelihood of the need to resume underground nuclear testing;
- Achieve further reductions in the future size of the stockpile;
- Reduce the risk of an accidental detonation; and,
- Reduce the risk of an element of the stockpile being used by a person or entity hostile to the United States, its vital interests, or its allies.

The Stockpile Support component of this appropriation includes Directed Stockpile Work and the supporting Readiness Campaign. The President's Budget Request is $2.0 billion, an increase of 25.2 percent over the FY 2010 appropriation. This provides for the Stockpile Management Program, including surveillance, maintenance, assembly, disassembly and dismantlement activities, and will fully support the ongoing Life Extension Programs for the W76 warhead and

the refurbishment of the B61 bomb. The budget request will enhance surveillance efforts, and ensure that capabilities and capacity are available so that future warhead life extension programs will allow for increased margin and enhanced warhead safety, security and control. The request will initiate a study in FY 2011 to evaluate future options and approaches to maintaining the W78, consistent with the principles of the Stockpile Management Program defined in Section 3113 (a)(2) of the National Defense Authorization Act of Fiscal Year 2010 (50 U.S.C. 2524).

The Science, Technology and Engineering (STE) component of this appropriation includes the Science Campaign, Engineering Campaign, Inertial Confinement Fusion and High Yield Campaign, Advanced Simulation and Computing Campaign, and Science, Technology and Engineering Capability. The President's Budget Request of $1.6 billion is an increase of 10.4 percent over the FY 2010 appropriation and will restore sufficient funds for the science and technology base that supports stockpile assessment and certification in the absence of nuclear testing. Within this request, the Inertial Confinement Fusion and High Yield Campaign is requested at $481.5 million. Construction of the National Ignition Facility (NIF) was completed in FY 2009, and the first in a series of ignition experiments beginning in the summer of 2010 will attempt to compress, implode, and ignite a layered deuterium-tritium capsule with a ~1.3 megajoule energy pulse from the NIF. Regardless of the specific status of ignition, FY 2011 will present a very demanding agenda of work in the ignition effort. Results from the first ignition experiments in 2010 will be analyzed in detail, and the intensive process of tuning laser and target parameters for optimum performance will continue toward development of a robust ignition platform by the end of 2012. The NIF is designed to provide critical scientific data to support the stockpile without underground nuclear testing.

Computation and simulation underpin all of our science, technology and engineering, and are pervasive throughout the activities in the nuclear security enterprise. The FY 2011 President's Budget Request of $616 million for the Advanced Simulation and Computing Campaign will enable a stronger simulation program and inject a renewed scientific rigor back into the program. Developing robust peer review among the national security laboratories as we move away from the test base experience is essential to being able to maintain a stockpile without underground testing. Comprehensive uncertainty quantification calculations in 3D will provide the confidence necessary to make reliable progress toward the predictive capability necessary to address stockpile aging issues. In the next decade, predictive capability and specific warhead simulation deliverables will demand ever more powerful and sophisticated simulation environments. This request will position the national security laboratories to take advantage of future platform architectures to more efficiently steward the stockpile.

Also within the STE component, the new subprogram to provide collaborative efforts in intelligence analysis, which was created in response to congressional funding in the Supplemental Appropriations Act, 2009, continues in FY 2011. This subprogram provides a focal point for science, technology and engineering in NNSA, and will facilitate a point of entry for the wider national security community into NNSA's programs and facilities. The FY 2009 supplemental funding provided for laboratory efforts in intelligence analysis. The FY 2011 request will support NNSA's commitment to a 5-year Memorandum of Understanding with the Defense Threat Reduction Agency for national security research and development of mutual interest. At this time, the defined focus areas of mutual interest are: Advanced Science and

Forensics, Experimental Capabilities, Science Based Output, Active Interrogation of Special Nuclear Material, and Nuclear Weapons Effects Modeling and Simulation.

The Infrastructure component of the appropriation includes Readiness in Technical Base and Facilities, Secure Transportation Asset, Facilities and Infrastructure Recapitalization Program, and Site Stewardship. The President's Budget Request is $2.3 billion, a 4.8 percent increase over the FY 2010 level. Transformation and maintenance of supporting physical infrastructure for the nuclear security enterprise is a high priority in the upcoming FYNSP. Along with the funding to support the ongoing operations of the government-owned, contractor operated laboratories and manufacturing facilities, the President's Budget Request includes funding for major long-term construction projects needed to restore critical capabilities in plutonium and uranium essential to the Stockpile Management program.

The President's Budget Request includes funding to complete the design and begin construction of the Chemistry and Metallurgy Research Facility Replacement -- Nuclear Facility at the Los Alamos National Laboratory. This facility conducts plutonium research and development and provides analytical capabilities in support of pit surveillance and production. The facility will also support the broad range of NNSA's nuclear security missions, including: 1) stockpile stewardship; 2) nuclear nonproliferation and disarmament; 3) arms control treaty monitoring; 4) nuclear forensics; and, 5) counterterrorism and emergency response. Current planning schedules full operation in 2022. A related project is requested to improve the safety profile at the adjoining PF-4 facility. The budget request also includes funding for continuing the design and construction planning of the Uranium Processing Facility at the Y-12 National Security Complex to support production and surveillance of highly-enriched uranium components. This facility is also planned to achieve full operations by 2022.

Maintaining and improving the current infrastructure is also an important priority for NNSA. The Facilities and Infrastructure Recapitalization Program is continuing to reduce the deferred maintenance backlog as it proceeds toward its planned conclusion in 2013. Increased funding is provided for the Site Stewardship program that integrates institutional/landlord functions for our sites, including regulatory-driven long-term Stewardship, Nuclear Materials Consolidation, and energy efficiency projects.

The Security and Nuclear Counterterrorism component of the appropriation includes Defense Nuclear Security, Cyber Security, and Nuclear Counterterrorism Incident Response. The President's Budget Request for these programs is $1.1 billion, which, except for a 5 percent increase in Nuclear Counterterrorism and Incident Response, represents an overall 3.2 percent decrease from FY 2010 appropriated levels. The decrease reflects efficiencies expected to be gained from risk-informed decisions identified through the Defense Nuclear Security program's Zero-Based Security Review, consistent with implementation of the Graded Security Protection Policy.

Defense Nuclear Nonproliferation Appropriation

The request for this appropriation is $2.7 billion; an increase of 25.8 percent over the FY 2010 appropriated level. The increase is driven by the imperative for U.S. leadership in nonproliferation initiatives both here and abroad, including the consolidation of fissile materials

disposition activities into this account. In addition to the programs funded solely by the NNSA, our programs support the Department of Energy mission to protect our national security by preventing the spread of nuclear weapons and nuclear materials to terrorist organizations and rogue states. These efforts are implemented in part through the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, formed at the G8 Kananaskis Summit in June 2002, and the Global Initiative to Combat Nuclear Terrorism, launched in Rabat, Morocco, in October 2006.

The FY 2011 President's Budget Request reflects support for the President's direction to secure vulnerable nuclear materials around the world in four years. The International Nuclear Materials Protection and Cooperation (MPC&A) program increases by 3 percent to support selective new security upgrades to buildings and areas that were added to the cooperation after the Bratislava summit, additional Second Line of Defense sites, sustainability of MPC&A upgrades, and continued expansion of nuclear and radiological material removal. The Global Threat Reduction Initiative increases by 68 percent to support an increase in reactor conversions and shutdowns, acceleration of domestic production capability of Molybdenum-99, and an acceleration of the removal and disposition of high-priority, vulnerable nuclear materials in full support of the President's nuclear security agenda. The Fissile Materials Disposition program increases by 47 percent reflecting continuing domestic construction on the MOX Fuel Fabrication Facility, and the design and construction of two major supporting facilities.

The NNSA's nonproliferation programs seek to secure nuclear materials worldwide that could be used for weapons and to convert such materials for peaceful applications, and, through the Second Line of Defense Program, provide the tools for partner countries to detect and interdict smuggling of these materials across international borders.

The Nuclear Nonproliferation Research and Development (R&D) activities seek to improve detection of nuclear material production and movement through advanced R&D. The program draws on the vast technical expertise of the NNSA and DOE national laboratories, as well as academia and industry, the program delivers solutions to the hardest technical nuclear security challenges. Focusing on nuclear detection instrumentation development that is tightly coordinated across federal and international agencies, these advanced detection techniques are a significant contributor to the U.S. ability to detect foreign nuclear materials production as well as the illicit movement of those materials. Further, the R&D program provides the backbone for advances in U.S. and international capabilities to monitor nuclear-related treaty obligations. In keeping with the President's commitment for verifiable treaties, the R&D program's FY 2011 budget request increases by 10% over the current year to include a more robust set of testing and evaluation activities to demonstrate new U.S. treaty monitoring capabilities.

The FY 2011 President's Budget Request has consolidated all of the funding requests for the Fissile Materials Disposition activities within the Defense Nuclear Nonproliferation appropriation. The current funding for both the MOX Fuel Fabrication Facility and Waste Solidification Building projects were moved in the FY 2010 appropriation, and the Pit Disassembly and Conversion Facility project has been moved back to Defense Nuclear Nonproliferation appropriation starting in FY 2011. The DOE has decided to explore a proposed combination of the Office of Environmental Management Plutonium Preparation Project and the

Pit Disassembly and Conversion Project in a single project located in an existing K-Area Facility at the Savannah River Site. This activity will be evaluated using the Department's project management order, DOE O 413, and will move toward a Critical Decision 1 (approval of alternative selection and cost range).

The U.S. continues to work with the Russian Federation on plutonium disposition in Russia pursuant to the Plutonium Management and Disposition Agreement reached in September 2000. Congress had appropriated $200 million in a FY 1999 Supplemental Appropriation to support Russian plutonium disposition activities; however, $207 million of this and other funding for this program was rescinded in FY 2008 due to lack of progress in Russia. The FY 2011 Request includes $100 million of the U.S. commitment to provide $400 million to support plutonium disposition in Russia once a Protocol amending the 2000 Agreement, related liability provisions, and a monitoring and inspection regime is signed. The balance of more than $2 billion in remaining cost associated with Russian plutonium disposition would be borne by Russia and non-U.S. contributions.

Naval Reactors Appropriation

The request for this appropriation is $1.1 billion; an increase of 13.3 percent over the FY 2010 appropriated level. The program directly supports the U.S. Navy's nuclear fleet, which encompasses all Navy submarines and aircraft carriers. The nuclear fleet is comprised of 54 attack submarines, 14 ballistic missile submarines, 4 guided missile submarines, and 11 aircraft carriers. These ships, and their consistent forward presence, are relied on every day, all over the world, to protect our national interests.

Naval Reactors has a long history of providing safe and reliable Naval nuclear propulsion. This requires continual analysis for prompt identification of leading indicators from fleet operations and careful engineering to assure prudent, yet timely modernization, and scrupulous maintenance. Over the last decade, funding for these successful endeavors has been relatively constant. The onset of unavoidable, nondiscretionary requirements for spent reactor fuel processing and replacement, and maintenance and disposal of an aging support infrastructure has required continued rebalancing of funding priorities. Those priorities coupled with new challenges necessitated the additional funding included in the budget request. Increases in the FY 2011 President's Budget Request support three key deliverables– the OHIO-class submarine replacement reactor plant, the refueling of the land-based prototype located in New York, and the Expended Core Facility at the Naval Reactors Facility located on the Idaho National Laboratory.

The most survivable leg of the Nation's strategic deterrent, the OHIO-class ballistic missile submarines are reaching the end of their operational life. Propulsion plant design and development efforts began in 2010 to support Navy procurement of reactor plant components in 2017, for ship construction starting in 2019. This schedule for development is consistent with previous designs. Key technical challenges include an effort to lower total ownership costs while maintaining the traditionally high operational availability of this new ship. The most important challenge to meet this is a life-of-the-ship reactor core.

The DOE land-based prototype reactor, which has served the Program's needs for R&D and training since 1978, requires refueling in 2017. The reactor provides a cost-effective test

platform for new technologies and components before they are introduced for Fleet applications, supports testing and evaluation of materials, and provides a vital training platform for reactor plant operators. The land-based prototype refueling will also provide key technical data for the OHIO-class submarine replacement, since the reactor core work to support the refueling will also support the core manufacturing development for the OHIO-class replacement. This approach is based on Naval Reactors' extensive experience in reactor design—taking advantage of the prototype refueling opportunity to proof-test new manufacturing techniques for reactor fuel cladding material never previously used by the Navy. This will reduce technical risk in manufacturing the OHIO-class replacement life-of-the-ship core.

The Expended Core Facility (ECF) is the central location for naval spent nuclear fuel receipt, inspection, dissection, packaging, and secure dry storage, as well as detailed examination of spent cores and irradiated specimens. The existing facility is more than 50 years old, and its mission has evolved significantly over time. While serviceable, it no longer efficiently supports the nuclear Fleet or the work required to meet the agreements we have with the State of Idaho for naval spent fuel. To minimize risks associated with an aging facility and support the timely refueling and defueling of nuclear-powered warships, construction is targeted to begin by 2015. Uninterrupted ECF receipt of naval spent nuclear fuel is vital to the timely, constant throughput of ship refuelings and return of these capital warships to the Fleet. The mission need statement for this project has been approved, and conceptual design and alternative analysis efforts began in 2010.

Office of the Administrator Appropriation

The request for this appropriation is $448.3 million; an increase of 6.5 percent over the FY 2010 appropriated level. This appropriation provides for the Federal staff and related support for the NNSA Headquarters and field organizations. The Federal personnel level for FY 2011 is projected at 1,970 Full Time Equivalents, essentially level with the expectation for FY 2010. Implicit in the request is a 1.4 percent cost of living adjustment and a 3.3 percent increase for performance-based salary increases, awards, and benefit escalation associated with the Federal workforce. Other increases reflect full funding for NNSA site office space requirements across the Nuclear Security Enterprise, funds for new building maintenance and lease requirements, and expansion of NNSA international offices for the NNSA's nonproliferation programs.

National Nuclear Security Administration

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FY 2011 BUDGET TABLES
National Nuclear Security Administration

Overview
Appropriation Summary

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
National Nuclear Security Administration			
Office of the Administrator	439,190	420,754	448,267
Weapons Activities	6,410,000	6,384,431	7,008,835
Defense Nuclear Nonproliferation	1,545,071	2,136,709	2,687,167
[non-add MOX Project funded in other appropriations]	[278,879]	N/A	N/A
Naval Reactors	828,054	945,133	1,070,486
Total, NNSA	9,222,315	9,887,027	11,214,755
Transfer of prior year balances - OMB scoring		-10,000	
Total, NNSA		9,877,027	

Outyear Appropriation Summary
NNSA Future-Years Nuclear Security Program (FYNSP)

(dollars in thousands)

	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
NNSA					
Office of the Administrator	448,267	426,424	430,726	435,069	448,498
Weapons Activities	7,008,835	7,032,672	7,082,146	7,400,966	7,648,200
Defense Nuclear Nonproliferation	2,687,167	2,507,191	2,715,191	2,833,243	2,956,328
Naval Reactors	1,070,486	1,099,734	1,171,178	1,226,017	1,310,530
Total, NNSA	**11,214,755**	**11,066,021**	**11,399,241**	**11,895,295**	**12,363,556**

Office of the Administrator
National Nuclear Security Administration

Overview
Appropriation Summary by Program

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation *	FY 2011 Request
Office of the Administrator			
Office of the Administrator	415,878	418,074	448,267
Congressionally Directed Projects	23,312	13,000	0
Use of Prior Year Balances	0	-10,320	0
Total, Office of the Administrator	**439,190**	**420,754**	**448,267**
Transfer of Prior Year Balances		-10,000	
Total, OMB Scoring	**439,190**	**410,754**	**448,267**

* Note: In accordance with P.L. 111-85, $10,000,000 of Office of the Administrator prior year balances have been transferred to Non-Defense Environmental Cleanup for cleanup efforts at the Argonne National Laboratory.

Public Law Authorization:
Energy and Water Development and Related Agencies Appropriations Act, 2010 (P.L. 111-85)
FY 2009 Omnibus Appropriations Act (P.L. 111-8)
National Nuclear Security Administration Act (P.L. 106-65), as amended

Outyear Appropriation Summary

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Office of the Administrator	**426,424**	**430,726**	**435,069**	**448,498**

Office of the Administrator

Congressionally Directed Projects

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009	FY 2010	FY 2011
Congressionally Directed Projects	23,312	13,000	0

Weapons Activities

Overview
Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Weapons Activities			
Directed Stockpile Work	1,590,152	1,505,859	1,898,379
Science Campaign	316,690	295,646	365,222
Engineering Campaign	150,000	150,000	141,920
Inertial Confinement Fusion Ignition and High Yield Campaign	436,915	457,915	481,548
Advanced Simulation and Computing Campaign	556,125	567,625	615,748
Readiness Campaign	160,620	100,000	112,092
Readiness in Technical Base and Facilities	1,674,406	1,842,870	1,848,970
Secure Transportation Asset	214,439	234,915	248,045
Nuclear Counterrorism Incident Response	215,278	221,936	233,134
Facilities and Infrastructure Recapitalization Program	147,449	93,922	94,000
Site Stewardship	0	61,288	105,478
Environmental Projects and Operations	38,596	0	0
Defense Nuclear Security	735,208	769,044	719,954
Cyber Security	121,286	122,511	124,345
Science, Technology and Engineering Capability	30,000	0	20,000
Congressionally Directed Projects	22,836	3,000	0
Use/Recission of Prior Year Balances	0	-42,100	0
Total, Weapons Activities	**6,410,000**	**6,384,431**	**7,008,835**

Public Law Authorization:
National Defense Authorization Act for Fiscal Year 2010 (P.L. 111-84)
Energy and Water Development and Related Agencies Appropriations Act, 2010 (P.L. 111-85)
National Nuclear Security Administration Act, (P.L. 106-65), as amended

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Weapons Activities				
Directed Stockpile Work	1,900,736	1,999,470	2,240,139	2,346,254
Science Campaign	397,460	418,823	416,199	394,766
Engineering Campaign	149,737	134,996	144,920	145,739
Inertial Confinement Fusion Ignition and High Yield Campaign	480,451	475,597	470,994	484,812
Advanced Simulation and Computing Campaign	622,940	616,257	615,420	633,134
Readiness Campaign	81,697	70,747	69,854	72,584
Readiness in Technical Base and Facilities	1,872,546	1,841,325	1,926,568	1,997,764
Secure Transportation Asset	251,272	249,456	252,869	261,521
Nuclear Counterrorism Incident Response	222,914	222,508	235,300	237,986
Facilities and Infrastructure Recapitalization Program	94,000	94,000	0	0
Site Stewardship	101,929	103,536	174,071	205,802
Defense Nuclear Security	730,944	729,609	728,925	740,649
Cyber Security	126,046	125,822	125,707	127,189
Total, Weapons Activities	**7,032,672**	**7,082,146**	**7,400,966**	**7,648,200**

Directed Stockpile Work

Funding Profile by Subprogram

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Directed Stockpile Work			
Life Extension Programs			
B61 Life Extension Program	1,854	0	0
W76 Life Extension Program	203,189	223,196	249,463
Subtotal, Life Extension Programs	**205,043**	**223,196**	**249,463**
Stockpile Systems			
B61 Stockpile Systems	90,204	91,956	317,136
W62 Stockpile Systems	1,500	0	0
W76 Stockpile Systems	63,219	56,554	64,521
W78 Stockpile Systems	40,347	48,311	85,898
W80 Stockpile Systems	30,712	27,398	34,193
B83 Stockpile Systems	26,938	33,502	39,349
W87 Stockpile Systems	40,949	48,139	62,603
W88 Stockpile Systems	43,928	51,940	45,666
Subtotal, Stockpile Systems	**337,797**	**357,800**	**649,366**
Weapons Dismantlement and Disposition			
99-D-141-01 Pit Disassembly and Conversion Facility-SRS	24,883	0	0
99-D-141-02 Waste Solidification Building-SRS	40,000	0	0
Weapons Dismantlement and Disposition	52,695	96,100	58,025
Pit Disassembly and Conversion Facility-O&M	69,351	0	0
Subtotal, Weapons Dismantlement and Disposition	**186,929**	**96,100**	**58,025**
Stockpile Services			
Production Support	308,806	300,037	309,761
Research & Development Support	35,049	37,071	38,582
Research & Development Certification and Safety	169,403	166,523	209,053
Management, Technology, and Production	192,072	183,223	193,811
Plutonium Capability	155,053	0	0
Plutonium Sustainment	0	141,909	190,318
Subtotal, Stockpile Services	**860,383**	**828,763**	**941,525**
Total, Directed Stockpile Work	**1,590,152**	**1,505,859**	**1,898,379**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Directed Stockpile Work				
Life Extension Programs				
W76 Life Extension Program	255,000	255,000	255,000	255,000
Subtotal, Life Extension Programs	**255,000**	**255,000**	**255,000**	**255,000**
Stockpile Systems				
B61 Stockpile Systems	337,851	394,027	437,518	512,296
W76 Stockpile Systems	56,418	58,312	55,396	54,038
W78 Stockpile Systems	104,964	156,340	346,923	345,359
W80 Stockpile Systems	31,627	34,566	35,974	36,621
B83 Stockpile Systems	37,160	38,294	42,621	42,059
W87 Stockpile Systems	67,754	64,924	51,898	50,433
W88 Stockpile Systems	61,229	65,094	69,777	68,648
Subtotal, Stockpile Systems	**697,003**	**811,557**	**1,040,107**	**1,109,454**
Weapons Dismantlement and Disposition	**53,327**	**48,446**	**58,102**	**60,089**
Stockpile Services				
Production Support	288,227	271,067	265,429	274,509
Research & Development Support	35,044	34,667	35,497	36,711
Research & Development Certification and Safety	207,133	213,923	214,632	222,777
Management, Technology, and Production	202,020	196,676	198,660	205,454
Plutonium Sustainment	162,982	168,134	172,712	182,260
Subtotal, Stockpile Services	**895,406**	**884,467**	**886,930**	**921,711**
Total, Directed Stockpile Work	**1,900,736**	**1,999,470**	**2,240,139**	**2,346,254**

Science Campaign

Funding Profile by Subprogram

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Science Campaign			
Advanced Certification	19,400	19,400	76,972
Primary Assessment Technologies	80,181	83,181	85,723
Dynamic Plutonium Experiments	23,022	0	0
Dynamic Materials Properties	83,231	86,617	96,984
Advanced Radiography	28,535	28,535	23,594
Secondary Assessment Technologies	76,913	77,913	81,949
Test Readiness	5,408	0	0
Total, Science Campaign	**316,690**	**295,646**	**365,222**

Outyear Funding Profile by Subprogram

	(dollars in thousands)			
	FY 2012	FY 2013	FY 2014	FY 2015
Science Campaign				
Advanced Certification	104,704	129,481	129,978	98,908
Primary Assessment Technologies	86,253	85,248	84,327	87,165
Dynamic Materials Properties	97,114	95,980	94,945	98,144
Advanced Radiography	27,132	26,816	26,528	27,421
Secondary Assessment Technologies	82,257	81,298	80,421	83,128
Total, Science Campaign	**397,460**	**418,823**	**416,199**	**394,766**

Engineering Campaign

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Engineering Campaign			
Enhanced Surety	46,111	42,000	42,429
Weapon Systems Engineering Assessment Technology	16,593	18,000	13,530
Nuclear Survivability	21,100	21,000	19,786
Enhanced Surveillance	66,196	69,000	66,175
Total, Engineering Campaign	**150,000**	**150,000**	**141,920**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Engineering Campaign				
Enhanced Surety	44,019	43,699	48,851	50,523
Weapon Systems Engineering Assessment Technology	16,533	15,199	19,730	20,404
Nuclear Survivability	20,627	18,550	10,334	10,687
Enhanced Surveillance	68,558	57,548	66,005	64,125
Total, Engineering Campaign	**149,737**	**134,996**	**144,920**	**145,739**

Inertial Confinement Fusion Ignition and High Yield Campaign

Funding Profile by Subprogram

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Inertial Confinement Fusion Ignition and High Yield Campaign			
Ignition	100,535	106,734	109,506
NIF Diagnostics, Cryogenics, and Experimental Support	66,201	72,252	102,649
Pulsed Power Inertial Confinement Fusion	8,652	5,000	5,000
Joint Program in High Energy Density Laboratory Plasmas	3,053	4,000	4,000
Facility Operations and Target Production	203,282	269,929	260,393
NIF Assembly and Installation Program	55,192	0	0
Total, Inertial Confinement Fusion Ignition and High Yield Campaign	**436,915**	**457,915**	**481,548**

Outyear Funding Profile by Subprogram

	(dollars in thousands)			
	FY 2012	FY 2013	FY 2014	FY 2015
Inertial Confinement Fusion Ignition and High Yield Campaign				
Ignition	110,222	74,410	71,479	73,886
Support of Other Stockpile Programs	17,240	39,637	35,522	49,154
NIF Diagnostics, Cryogenics, and Experimental Support	74,104	83,878	82,921	76,117
Pulsed Power Inertial Confinement Fusion	5,000	5,000	5,000	5,000
Joint Program in High Energy Density Laboratory Plasmas	4,000	4,000	4,000	4,000
Facility Operations and Target Production	269,885	268,672	272,072	276,655
Total, Inertial Confinement Fusion Ignition and High Yield Campaign	**480,451**	**475,597**	**470,994**	**484,812**

Advanced Simulation and Computing Campaign

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Advanced Simulation and Computing Campaign			
Integrated Codes	138,917	140,882	165,947
Physics and Engineering Models	49,284	61,189	62,798
Verification and Validation	50,184	50,882	54,781
Computational Systems and Software Environment	156,733	159,022	175,833
Facility Operations and User Support	161,007	155,650	156,389
Total, Advanced Simulation and Computing Campaign	**556,125**	**567,625**	**615,748**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Advanced Simulation and Computing Campaign				
Integrated Codes	167,327	163,752	163,887	168,143
Physics and Engineering Models	66,541	65,019	64,626	66,438
Verification and Validation	54,168	52,879	52,300	53,835
Computational Systems and Software Environment	175,833	175,833	175,833	180,912
Facility Operations and User Support	159,071	158,774	158,774	163,806
Total, Advanced Simulation and Computing Campaign	**622,940**	**616,257**	**615,420**	**633,134**

Readiness Campaign

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Readiness Campaign			
Stockpile Readiness	27,869	5,746	18,941
High Explosives and Weapon Operations	8,581	4,608	3,000
Nonnuclear Readiness	32,545	12,701	21,864
Tritium Readiness	70,409	68,246	50,187
Advanced Design and Production Technologies	21,216	8,699	18,100
Total, Readiness Campaign	**160,620**	**100,000**	**112,092**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Readiness Campaign				
Tritium Readiness	81,697	70,747	69,854	72,584
Total, Readiness Campaign	**81,697**	**70,747**	**69,854**	**72,584**

Readiness in Technical Base and Facilities

Funding Profile by Subprogram

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Readiness in Technical Base and Facilities			
Operations of Facilities			
Kansas City Plant	89,871	156,056	186,102
Lawrence Livermore National Laboratory	82,605	86,670	80,106
Los Alamos National Laboratory	289,169	311,776	318,464
Nevada Test Site	92,203	79,583	80,077
Pantex	101,230	131,602	121,254
Sandia National Laboratory	123,992	104,133	117,369
Savannah River Site	92,762	128,580	92,722
Y-12 National Security Complex	235,397	229,774	220,927
Institutional Site Support	56,102	120,129	40,970
Subtotal, Operations of Facilities	1,163,331	1,348,303	1,257,991
Program Readiness	71,626	73,021	69,309
Material Recycle and Recovery	70,334	69,542	70,429
Containers	22,696	23,392	27,992
Storage	31,951	24,708	24,233
Subtotal, Operations and Maintenance	**1,359,938**	**1,538,966**	**1,449,954**
Construction	314,468	303,904	399,016
Total, Readiness in Technical Base and Facilities	**1,674,406**	**1,842,870**	**1,848,970**

Outyear Funding Profile by Subprogram

	(dollars in thousands)			
	FY 2012	FY 2013	FY 2014	FY 2015
Readiness in Technical Base and Facilities				
Operations of Facilities	1,178,512	1,129,208	1,061,276	1,097,791
Program Readiness	48,492	47,998	63,541	65,713
Material Recycle and Recovery	61,678	63,673	63,386	65,554
Containers	22,043	23,100	22,971	23,757
Storage	19,535	21,425	21,942	22,693
Subtotal, Operations and Maintenance	**1,330,260**	**1,285,404**	**1,233,116**	**1,275,508**
Construction	542,286	555,921	693,452	722,256
Readiness in Technical Base and Facilities	**1,872,546**	**1,841,325**	**1,926,568**	**1,997,764**

Secure Transportation Asset

Overview
Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Secure Transportation Asset (STA)			
Operations and Equipment	127,701	138,772	149,018
Program Direction	86,738	96,143	99,027
Total, Secure Transportation Asset	**214,439**	**234,915**	**248,045**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Operations and Equipment				
Operations and Equipment	149,274	144,398	144,660	150,066
Program Direction	101,998	105,058	108,209	111,455
Total, Operations and Equipment	**251,272**	**249,456**	**252,869**	**261,521**

Secure Transportation Asset

Operations and Equipment

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Operations and Equipment			
Mission Capacity	70,107	75,038	84,010
Security/Safety Capability	20,617	26,472	27,001
Infrastructure and C5 Systems	25,978	23,217	23,681
Program Management	10,999	14,045	14,326
Total, Operations and Equipment	**127,701**	**138,772**	**149,018**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Operations and Equipment				
Mission Capacity	82,966	76,764	75,672	79,699
Security/Safety Capability	27,541	28,092	28,654	29,227
Infrastructure and C5 Systems	24,155	24,638	25,131	25,633
Program Management	14,612	14,904	15,203	15,507
Total, Operations and Equipment	**149,274**	**144,398**	**144,660**	**150,066**

Secure Transportation Asset

Program Direction

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Program Direction			
Salaries and Benefits	75,226	81,225	83,311
Travel	10,188	11,331	7,746
Other Related Expenses	1,324	3,587	7,970
Total, Program Direction	**86,738**	**96,143**	**99,027**
Total, Full Time Equivalents	**570**	**647**	**637**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Program Direction				
Salaries and Benefits	85,781	88,323	90,943	93,641
Travel	7,980	8,218	8,465	8,719
Other Related Expenses	8,237	8,517	8,801	9,095
Total, Program Direction	**101,998**	**105,058**	**108,209**	**111,455**
Total, Full Time Equivalents	**637**	**637**	**637**	**637**

Nuclear Counterrorism Incident Response

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Nuclear Counterterrorism Incident Response (Homeland Security)[a]			
Emergency Response (Homeland Security)[a]	132,918	139,048	134,092
National Technical Nuclear Forensics (Homeland Security)[a]	12,557	10,217	11,698
Emergency Management (Homeland Security)[a]	7,428	7,726	7,494
Operations Support (Homeland Security)[a]	8,207	8,536	8,675
International Emergency Management and Cooperation	4,515	7,181	7,139
Nuclear Counterterrorism (Homeland Security)[a]	49,653	49,228	64,036
Total, Nuclear Counterterrorism Incident Response	**215,278**	**221,936**	**233,134**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Nuclear Counterterrorism Incident Response				
Emergency Response (Homeland Security)[a]	137,715	138,359	139,504	141,107
National Technical Nuclear Forensics (Homeland Security)[a]	11,589	11,694	11,577	11,828
Emergency Management (Homeland Security)[a]	7,129	6,629	6,505	6,694
Operations Support (Homeland Security)[a]	8,691	8,799	8,749	9,000
International Emergency Management and Cooperation	7,129	7,139	7,032	7,275
Nuclear Counterterrorism (Homeland Security)[a]	50,661	49,888	61,933	62,082
Total, Nuclear Counterterrorism Incident Response	**222,914**	**222,508**	**235,300**	**237,986**

[a] Office of Management and Budget (OMB) Homeland Security designation.

Facilities and Infrastructure Recapitalization Program

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Facilities and Infrastructure Recapitalization Program			
Operations and Maintenance (O&M)			
Recapitalization	69,226	69,377	79,600
Infrastructure Planning	10,324	8,982	9,400
Facility Disposition	0	5,600	5,000
Subtotal, Operations and Maintenance (O&M)	**79,550**	**83,959**	**94,000**
Construction	67,899	9,963	0
Total, Facilities and Infrastructure Recapitalization Program	**147,449**	**93,922**	**94,000**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Facilities and Infrastructure Recapitalization Program				
Operations and Maintenance (O&M)				
Recapitalization	79,600	86,600	0	0
Infrastructure Planning	9,400	2,400	0	0
Facility Disposition	5,000	5,000		
Subtotal, Operations and Maintenance (O&M)	**94,000**	**94,000**	**0**	**0**
Construction	0	0	0	0
Total, Facilities and Infrastructure Recapitalization Program	**94,000**	**94,000**	**0**	**0**

Site Stewardship

Funding Profile by Subprogram

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Site Stewardship			
Operations and Maintenance	0	61,288	90,478
Construction			15,000
Total, Site Stewardship	**0**	**61,288**	**105,478**

Outyear Funding Profile by Subprogram

	(dollars in thousands)			
	FY 2012	FY 2013	FY 2014	FY 2015
Site Stewardship				
Operations and Maintenance	101,929	103,536	174,071	205,802
Construction	0	0	0	0
Total, Site Stewardship	**101,929**	**103,536**	**174,071**	**205,802**

Environmental Projects and Operations

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Environmental Projects and Operations			
Long-Term Stewardship	38,596	0	0
Total, Environmental Projects and Operations	**38,596**	**0**	**0**

Safeguards and Security

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Safeguards and Security (S&S)			
Defense Nuclear Security (Homeland Security)			
Operations and Maintenance	689,510	720,044	667,954
Construction	45,698	49,000	52,000
Total, Defense Nuclear Security	**735,208**	**769,044**	**719,954**
Cyber Security (Homeland Security)	**121,286**	**122,511**	**124,345**
Total, Safeguards and Security	**856,494**	**891,555**	**844,299**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Safeguards and Security (S&S)				
Defense Nuclear Security (Homeland Security)				
Operations and Maintenance	675,229	672,344	671,671	681,259
Construction	55,715	57,265	57,254	59,390
Total, Defense Nuclear Security	**730,944**	**729,609**	**728,925**	**740,649**
Cyber Security (Homeland Security)	**126,046**	**125,822**	**125,707**	**127,189**
Total, Safeguards and Security	**856,990**	**855,431**	**854,632**	**867,838**

Defense Nuclear Security

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Defense Nuclear Security			
Operations and Maintenance (Homeland Security)			
Protective Forces	418,694	453,000	414,166
Physical Security Systems	77,245	74,000	73,794
Transportation	420	0	0
Information Security	25,880	25,300	25,943
Personnel Security	31,263	30,600	30,913
Materials Control and Accountability	35,929	35,200	35,602
Program Management	71,364	83,944	80,311
Technology Deployment, Physical Security	9,431	8,000	7,225
Graded Security Protection Policy (formerly DBT)	19,284	10,000	0
Total, Operations and Maintenance (Homeland Security)	**689,510**	**720,044**	**667,954**
Construction (Homeland Security)	45,698	49,000	52,000
Total, Defense Nuclear Security	**735,208**	**769,044**	**719,954**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Defense Nuclear Security				
Operations and Maintenance (Homeland Security)				
Protective Forces	422,221	414,432	414,617	421,346
Physical Security Systems	71,405	73,987	71,165	72,297
Information Security	26,202	26,464	26,729	26,996
Personnel Security	31,222	31,534	31,849	32,167
Materials Control and Accountability	35,958	36,318	36,681	37,048
Program Management	80,924	82,239	83,186	83,887
Technology Deployment, Physical Security	7,297	7,370	7,444	7,518
Total, Operations and Maintenance (Homeland Security)	**675,229**	**672,344**	**671,671**	**681,259**
Construction (Homeland Security)	55,715	57,265	57,254	59,390
Total, Defense Nuclear Security	**730,944**	**729,609**	**728,925**	**740,649**

Cyber Security

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Cyber Security (Homeland Security)			
Infrastructure Program	93,776	99,011	97,849
Enterprise Secure Computing	25,500	21,500	21,500
Technology Application Development	2,010	2,000	4,996
Total, Cyber Security (Homeland Security)	**121,286**	**122,511**	**124,345**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Cyber Security (Homeland Security)				
Infrastructure Program	99,550	99,326	98,211	99,693
Enterprise Secure Computing	21,500	21,500	22,500	22,500
Technology Application Development	4,996	4,996	4,996	4,996
Total, Cyber Security (Homeland Security)	**126,046**	**125,822**	**125,707**	**127,189**

Science, Technology and Engineering Capability

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Operations and Maintenance	**30,000**	**0**	**20,000**
Total, Science, Technology and Engineering Capability	**30,000**	**0**	**20,000**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Operations and Maintenance	**0**	**0**	**0**	**0**
Total, Science, Technology and Engineering Capability	**0**	**0**	**0**	**0**

Weapons Activities

Congressionally Directed Projects

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Congressionally Directed Projects	**22,836**	**3,000**	**0**

Defense Nuclear Nonproliferation

Overview
Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Defense Nuclear Nonproliferation			
Nonproliferation and Verification Research and Development	356,281	317,300	351,568
Nonproliferation and International Security	150,000	187,202	155,930
International Nuclear Materials Protection and Cooperation	460,592 [a]	572,050	590,118
Elimination of Weapons-Grade Plutonium Production	141,299	24,507	0
Fissile Materials Disposition	41,774	701,900	1,030,713
Global Threat Reduction Initiative	404,640 [b]	333,500	558,838
Congressional Directed Projects	1,903	250	0
Subtotal, Defense Nuclear Nonproliferation	**1,556,489**	**2,136,709**	**2,687,167**
Use of Prior Year Balances	-11,418	0	0
Total, Defense Nuclear Nonproliferation	**1,545,071**	**2,136,709**	**2,687,167**

NOTES: FY 2009 funds appropriated in Other Defense Activities for the Mixed Oxide Fuel Fabrication Facility, and in Weapons Activities for the Waste Solidification Building and Pit Disassembly and Conversion Facility (FY 2009 and FY 2010) are not reflected in the above table.

Public Law Authorization:
Energy and Water and Related Agencies Appropriations Act, 2010 (P.L. 111-85)
National Nuclear Security Administration Act, (P.L. 106-65), as amended
National Defense Authorization Act for Fiscal Year 2010 (P.L. 111-84)

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Defense Nuclear Nonproliferation				
Nonproliferation and Verification Research and Development	315,941	317,558	328,194	351,145
Nonproliferation and International Security	161,083	165,275	169,861	181,741
International Nuclear Materials Protection and Cooperation	570,798	561,790	558,492	623,670
Fissile Materials Disposition	859,375	1,010,642	789,558	743,600
Global Threat Reduction Initiative	599,994	659,926	987,138	1,056,172
Total, Defense Nuclear Nonproliferation	**2,507,191**	**2,715,191**	**2,833,243**	**2,956,328**

[a] FY 2009 amount includes international contributions of $4,067,065 from Government of Canada, $387,335 from New Zealand, $837,600 from Norway, and $300,000 from South Korea.

[b] FY 2009 amount includes international contributions of $3,918,000 from the Government of Canada, and $5,722,212 from the United Kingdom of Great Britain and Northern Ireland.

Nonproliferation and Verification Research and Development

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Nonproliferation and Verification R&D			
Operations and Maintenance (O&M)			
Proliferation Detection	195,400	181,839	225,004
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]
Nuclear Detonation Detection	142,421	135,461	126,564
Subtotal, O&M	**337,821**	**317,300**	**351,568**
Construction	18,460	0	0
Total, Nonproliferation and Verification R&D	**356,281**	**317,300**	**351,568**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Nonproliferation and Verification R&D				
Operations and Maintenance				
Proliferation Detection (PD)	182,614	183,549	189,696	202,962
Homeland Security-Related Proliferation Detection [Non-Add]	[50,000]	[50,000]	[50,000]	[50,000]
Nuclear Detonation Detection	133,327	134,009	138,498	148,183
Total, Nonproliferation and Verification R&D	**315,941**	**317,558**	**328,194**	**351,145**

Nonproliferation and International Security

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Nonproliferation and International Security			
Dismantlement and Transparency	47,529	72,763	49,207
Global Security Engagement and Cooperation	44,076	50,708	47,289
International Regimes and Agreements	40,793	42,703	39,824
Treaties and Agreements	17,602	21,028	19,610
Total, Nonproliferation and International Security	**150,000**	**187,202**	**155,930**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Nonproliferation and International Security				
Dismantlement and Transparency	50,832	52,155	53,602	57,351
Global Security Engagement and Cooperation	48,852	50,124	51,514	55,117
International Regimes and Agreements	41,141	42,210	43,383	46,417
Treaties and Agreements	20,258	20,786	21,362	22,856
Total, Nonproliferation and International Security	**161,083**	**165,275**	**169,861**	**181,741**

International Nuclear Materials Protection and Cooperation

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
International Nuclear Materials Protection and Cooperation			
Navy Complex	30,316	33,880	34,322
Strategic Rocket Forces/12th Main Directorate	51,767	48,646	51,359
Rosatom Weapons Complex	76,070	71,517	105,318
Civilian Nuclear Sites	45,542	63,481	59,027
Material Consolidation and Conversion	21,560	13,611	13,867
National Programs and Sustainability	54,901	68,469	60,928
Second Line of Defense	174,844	272,446	265,297
International Contributions	5,592 [a]	0	0
Total, International Nuclear Materials Protection and Cooperation	**460,592**	**572,050**	**590,118**

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
International Nuclear Materials Protection and Cooperation				
Navy Complex	31,764	0	0	0
Strategic Rocket Forces/12th Main Directorate	37,830	0	0	0
Rosatom Weapons Complex	52,000	0	0	0
Civilian Nuclear Sites	18,502	0	0	0
Material Consolidation and Conversion	14,306	14,627	14,627	16,433
National Programs and Sustainability	61,967	39,006	39,006	43,623
Second Line of Defense	354,429	508,157	504,859	563,614
International Contributions	0	0	0	0
Total, International Nuclear Materials Protection and Cooperation	**570,798**	**561,790**	**558,492**	**623,670**

[a] FY 2009 amount includes international contributions of $4,067,065 from Government of Canada, $387,335 from New Zealand, $837,600 from Norway, and $300,000 from South Korea.

Elimination of Weapons-Grade Plutonium Production

Funding Profile by Subprogram

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Elimination of Weapons-Grade Plutonium Production (EWGPP)			
Zheleznogorsk Plutonium Production Elimination (ZPPEP)	139,282	22,507	0
Crosscutting and Technical Support Activities	2,017	2,000	0
Total, Elimination of Weapons-Grade Plutonium Production (EWGPP)	**141,299**	**24,507**	**0**

Outyear Funding Profile by Subprogram

	(dollars in thousands)			
	FY 2012	FY 2013	FY 2014	FY 2015
Elimination of Weapons-Grade Plutonium Production	0	0	0	0

Fissile Materials Disposition

Funding Profile by Subprogram

	(dollars in thousands)		
	FY 2009 Current Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Fissile Materials Disposition (FMD)			
U.S. Surplus Fissile Materials Disposition			
Operations and Maintenance (O&M)			
U.S. Plutonium Disposition	0	90,896	278,940
U.S. Uranium Disposition	39,274	34,691	25,985
Supporting Activities	1,500	1,075	0
Subtotal, O&M	**40,774**	**126,662**	**304,925**
Construction	0	574,238	612,788
Total, U.S. Surplus FMD	**40,774**	**700,900**	**917,713**
Russian Surplus FMD			
Russian Materials Disposition	1,000	1,000	113,000
Total, Fissile Materials Disposition	**41,774**	**701,900**	**1,030,713**

Outyear Funding Profile by Subprogram

	(dollars in thousands)			
	FY 2012	FY 2013	FY 2014	FY 2015
Fissile Materials Disposition				
U.S. Surplus Fissile Materials Disposition (O&M)	302,276	482,185	478,897	459,827
Construction	556,099	527,457	309,661	282,773
Russian Surplus Fissile Materials Disposition	1,000	1,000	1,000	1,000
Total, Fissile Materials Disposition	**859,375**	**1,010,642**	**789,558**	**743,600**

Global Threat Reduction Initiative (GTRI)

Funding Profile by Subprogram [a]

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Global Threat Reduction Initiative			
Highly Enriched Uranium (HEU) Reactor Conversion	**76,706**	**102,772**	**119,000**
Nuclear and Radiological Material Removal			
Russian-Origin Nuclear Material Removal	123,083	94,167	145,191
U.S.-Origin Nuclear Material Removal	8,331	9,889	16,500
Gap Nuclear Material Removal	4,982	9,111	108,000
Emerging Threats Nuclear Material Removal	7,600	5,556	16,000
International Radiological Material Removal	21,702	8,333	45,000
Domestic Radiological Material Removal	17,063	17,778	25,000
Subtotal, Nuclear and Radiological Material Removal	**182,761**	**144,834**	**355,691**
Nuclear and Radiological Material Protection			
BN-350 Nuclear Material Protection	50,977	9,109	2,000
International Material Protection	42,909	41,463	57,000
Domestic Material Protection	41,647	35,322	25,147
Subtotal, Nuclear and Radiological Material Protection	**135,533**	**85,894**	**84,147**
Total, Global Threat Reduction Initiative (appropriation)	**395,000**	**333,500**	**558,838**
Funds from International Contributions	**9,640**	**0**	**0**
Total, Global Threat Reduction Initiative Funds Available	**404,640**	**333,500**	**558,838**

[a] FY 2009 amount includes international contributions of $3,918,000 from the Government of Canada, and $5,722,212 from the United Kingdom of Great Britain and Northern Ireland.

Outyear Funding Profile by Subprogram

(dollars in thousands)

	FY 2012	FY 2013	FY 2014	FY 2015
Global Threat Reduction Initiative				
HEU Reactor Conversion	**176,000**	**210,000**	**245,000**	**293,000**
Nuclear and Radiological Material Removal				
Russian-Origin Nuclear Material Removal	96,000	70,000	82,000	83,000
U.S.-Origin Nuclear Material Removal	1,000	3,000	1,000	1,000
Gap Nuclear Material Removal	22,000	16,000	27,000	1,000
Emerging Threats Nuclear Material Removal	16,000	16,000	194,000	188,000
International Radiological Material Removal	44,000	39,000	10,000	10,000
Domestic Radiological Material Removal	31,000	31,000	33,000	34,000
Subtotal, Nuclear and Radiological Material Removal	**210,000**	**175,000**	**347,000**	**317,000**
Nuclear and Radiological Material Protection				
BN-350 Nuclear Material Protection	2,000	0	0	0
International Material Protection	100,000	125,000	130,000	143,000
Domestic Material Protection	111,994	149,926	265,138	303,172
Subtotal, Nuclear and Radiological Material Protection	**213,994**	**274,926**	**395,138**	**446,172**
Total, Global Threat Reduction Initiative	**599,994**	**659,926**	**987,138**	**1,056,172**

Congressionally Directed Projects

Funding Profile by Subprogram

(dollars in thousands)

	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Congressionally Directed Projects	**1,903**	**250**	**0**

Naval Reactors

Overview
Appropriation Summary by Program

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Naval Reactors Development			
Operations and Maintenance (O&M)	771,600	877,533	997,886
Program Direction	34,454	36,800	40,000
Construction	22,000	30,800	32,600
Total, Naval Reactors Development	**828,054**	**945,133**	**1,070,486**

Public Law Authorizations:
P.L. 83-703, "Atomic Energy Act of 1954"
"Executive Order 12344 (42 U.S.C. 7158), "Naval Nuclear Propulsion Program"
P.L. 107-107, "National Defense Authorizations Act of 2002", Title 32, "National Nuclear Security Administration"
John Warner National Defense Authorization Act for FY 2007, (P.L. 109-364)
FY 2008 Consolidated Appropriations Act (P.L. 110-161)
National Nuclear Security Administration Act, (P.L. 106-65), as amended
FY 2009 Consolidated Appropriations Act (P.L. 111-8)
FY 2010 Energy and Water and Related Agencies Appropriations Act (P.L. 111-85)

Outyear Appropriation Summary by Program

	(dollars in thousands)			
	FY 2012	FY 2013	FY 2014	FY 2015
Naval Reactors Development				
Operations and Maintenance	1,018,634	1,102,978	1,177,817	1,240,430
Program Direction	41,200	42,400	43,700	45,000
Construction	39,900	25,800	4,500	25,100
Total, Naval Reactors Development	**1,099,734**	**1,171,178**	**1,226,017**	**1,310,530**

Mr. PASTOR. Yes, sir.

Mr. D'AGOSTINO. Thank you, sir.

Admiral DONALD. Mr. Chairman and Ranking Member Frelinghuysen and members of the subcommittee, thank you for the opportunity to appear before you today. I am the director of Naval Reactors, an organization that has been in the business of providing reactor plants for our naval ships for over 60 years. I am the fifth director of Naval Reactors, I am the last in a line that began with Admiral Hyman Rickover when he started the program in 1948. I am now in my 6th year as the director of Naval Nuclear Propulsion.

Our nuclear fleet includes all of our submarines and aircraft carriers, some 82 ships that, right now, are operating throughout the globe in support of America's interests and to keep at bay those who wish us harm.

My job is to ensure that the reactor plants on those ships are operated in a safe and effective manner. We have wonderful young men and women who are operating those ships. It is my responsibility to ensure that they are able to do their work and operate those ships as effectively as possible.

I do keep my eye on daily operations. That is a large part of what I do, but I also have to keep my eye on what happens in the foreseeable future and to ensure that we have a sustainable industrial base and technology to support the Navy of the future.

After a long period of relatively stable funding in my budget, you did point out that we do have an increase over what we had in previous years. During my tenure, we have worked very hard to adjust and rebalance within our existing budget to ensure that I meet some nondiscretionary work requirements, such as building the extended core facility fuel handling facility and dealing with aging facilities and all of the work that goes with maintaining an industrial base that is sometimes approaching over 50 years of age. We have done that successfully. I think we have done that efficiently, including some streamlining in our business, as Mr. D'Agostino had mentioned, to ensure we are being good stewards of the taxpayer's trust.

This year, however, as you have pointed out, the Navy is beginning some additional work that requires some additional resources. We have begun design of the follow-on to the Ohio class ballistic missile submarine, which has provided our nation with a survivable nuclear deterrent for the past several decades.

To meet the operational requirements of that new platform, I need to design a new reactor plant. Our goals in building this reactor plant are to improve the operational availability of that ship to make it more available over its life and, also, to reduce total operational cost over life. And the key element to that is a new reactor core that we want to design to last for the life of the ship.

We have done that for the Virginia class submarines with a 33-year core. We are seeking to extend that to 40 years for the Ohio class replacement.

This effort dovetails well with the second requirement, and that is to refuel our land-based prototype in Saratoga Springs, New York, with technology that will be used in the core for the Ohio class replacement. That land-based reactor plant is running out of

fuel. We have to do the work here in the near future so the work that is in my budget supports that effort.

It is also one of our premier training platforms for our sailors. Over half of our sailors that go to our ships every single year go through New York to get their practical training in operations of reactor plants.

Finally, we need to recapitalize the expanded core facility in Idaho Falls where all of our naval spent nuclear fuel goes. This facility is over 50 years old. It has served us well. It is certainly serviceable, but it is also a 50-year-old facility. And we are absolutely dependent on that facility operating properly and efficiently to keep this flow of spent fuel coming out of our ships, out of our shipyards, and put into proper care and dry storage in the state of Idaho, not only to meet the needs of the nuclear fleet, but also, to meet our commitments to the state of Idaho for proper handling of that material.

I recognize that an increase in budget in this economic environment is going to be a challenge for the committee, but I personally assure you that the history of this program has shown that we are good stewards of the taxpayer's trust for over 60 years, and I will personally ensure that that continues as we take on these new projects in the future.

I will be ready and willing and able to answer any questions you may have about the details of the programs that I have presented today. Thank you very much for your time.

Mr. PASTOR. Thank you, Admiral.

As I recall, I think in the 2008 report, we had asked for—there had been a set of questions, I think, in that report that we asked about where we were and where we were going. And I asked last year when I was given this responsibility and they said, well, we still do not have the answers. Okay.

And I asked these questions, not because I have a fight with you, because I do not—because I think we are all on the same platform. And that is, as stewards of the taxpayer's money, we need to ensure that those monies are invested in a proper form so that, as you guys well know, we want to get the big bang for the dollar.

You heard the ranking member, and I, too, support this administration. I worked very hard to get the president elected. And I, too, along with all my colleagues, believe in a strong defense. I mean, that is not the issue.

But I think all of us here on the dais take the responsibility—especially during these times, as the president said in his State of the Union, that we just do not have the luxury of a lot of money. We are in a situation where—and we could go through all the facts. We need to make sure that every dollar is well spent.

When I was given this responsibility last year, I recognized that I had a lot of catch-up to do. And I will readily admit that. I said most of the generals I met, we were dealing with building projects because they were on the core side. And now, I am dealing with generals that want to bomb things. [Laughter.]

So I said, well, even though I have sat in these hearings, you know, it was interesting because all of a sudden, I had these meeting. And I needed to have them, and I had them only because I needed to become well-informed.

And I remember I was told early in the spring that there was a report to be coming to us probably early fall. And it was the nuclear posture review. And I asked why was this important. They said, well, this is going to tell us what the short-term goals are as well as the vision and the long-term goals.

I said, well, it would be good to look at that review so that, as we invest taxpayer's money that, again, they are investments that we need. And so we, as a subcommittee, kind of said, well, we are going to hold off a little bit. And as you know, it has created a lot of commotion.

But that was not the intent. The intent was, we want to see the review and be able to, as oversight, be able to invest the money in a wise manner.

But it was a good time for me to learn about these programs, and I learned how the development of some of these weapons was linked to the F–35 and how we had to keep that in line. And some other people said, well, you can wait for the review, but it is not going to change much, so have faith in us, go ahead and fund it. I said okay. Let us look at that.

But, finally, the argument that won with me was that—and it was, I think, one of your undersecretaries. He had just come on board. He said, well, the problem you are creating is that we have staff that have been working and are working. And if it is unclear to them what is going to happen in this budget, then they may start looking and we are going to lose that talent.

And I figured, you know what, it is a great argument. So we worked out a compromise with you.

So I did not know what my status was going to be this year, and as we came into the new year, I was told that I would have the honor again to work on this committee. And guess what? I asked for it. The first thing when they told me that, I said I want to be prepared because the administrator is going to come. I want to ask him questions that are important. Where is the review?

And they said, it is coming. I said, when? We do not know, but it is coming. I said, well, wow. [Laughter.]

And then I read the Washington Post, I guess it was a couple of days ago where there is slippage on the F–35. And I am saying, well, I do not have the report which, again, it was short term, long term. There is slippage now on the F–35, which I was convinced that was linkages, they are very important.

And then the budget comes out, and it says there is an increase of $1.3 billion. And taking the president seriously and being a steward of the taxpayer's money, I said, wow, how are they going to spend this $1.3 billion?

And so I ask these questions in that manner, not because there is any animosity to you, as we both agree that we are stewards. And so I have to tell you that, when we start marking up, you know, maybe at April, mid-April or late April or sometime in the spring, you know, it is going to be a question.

And I guess the question is this—and you can take a little time today but, probably, it is going to take more conversations in the future. Can you describe how you think you can execute this level of funding given the overlaps in programs, skill sets necessary for things like life-extension programs, dismantling activities, and

more information that we need in our oversight, probably the less commotion we will have this year.

And, also, somehow in there, you are going to have to link up the F–35 because, last year, you convinced me it was very important, but then with the slippage, where am I at today?

Mr. D'AGOSTINO. Thank you, Mr. Chairman. I would be glad to answer that question. It may take more than 5 minutes.

Mr. PASTOR. If it is going to take more than 5 minutes——

[Laughter.]

But what I am saying is—these are going to be conversations we are going to have. But I just wanted to at least let you know that some of the concerns that we have.

Mr. D'AGOSTINO. Certainly.

Mr. PASTOR. And so this is not going to be the last time we are going to discuss these issues, but at least I will give you a chance to take 5 minutes to——

Mr. D'AGOSTINO. Certainly. Well, anticipation we are going to be seeing each other in the future.

Mr. PASTOR. Yes, sir.

Mr. D'AGOSTINO. Thank you. I would be glad to describe a little bit. Now, I will leave the F–35 question to my Air Force colleague. But let me start with the nuclear posture review.

As you may or may not have been aware, our original goal was to have the nuclear posture be linked with the release of the president's budget so that both would come out together. But what we recognize in the administration, and based on early analysis from the nuclear posture review, is what is clear, as we look to implement the elements of the president's speech that he gave in Prague vision—fewer numbers of warheads, more effort in nuclear non-proliferation, maintaining the scientific and technical expertise. Certain principles remain constant.

And so the president's request basically reflects the need to reinvest in certain systems because they are getting older every year, that we had to invest in our people and that we had to recapitalize our infrastructure.

The nuclear posture review release has been delayed a bit. The desire—the reason for the delay has less to do with the specific program and budget we have before us today and more to do with making sure that the policy pieces are well understood and communicated within the administration and getting the wording exactly right because we recognize that not only members in Congress are very much interested in wanting to know what our strategy and policy is, but actually it will have a worldwide impact. So we had to get the wording exactly right and make sure that the president has had a chance to read every single element of that wording on policy.

But if I want to go to your question directly, how could the NNSA execute such a large increase. We looked at this question before I went and made the case internally in the administration. We basically have the increase broken up into four main areas.

One is operations. One is procurement. One has to do with construction. And then one has to do with people, bringing in new people because we recognize that you cannot hire—you know, this is

not about hiring an extra billion dollars worth of people to particular elements.

On the operations side, I have looked very closely at the costing information. What we are doing is accelerating ongoing work. One example is the W–76 warhead life extension program is accelerating to get to the full production rates. So it is not necessarily something that we would start from scratch and get going right off from a dead stop. It is accelerating ongoing work that has to happen.

On the procurement side, in April last year, I established an enterprise reengineering team because I recognized that in order to ramp ourselves up to do work that I felt was necessary, we needed to change the way we do business. We asked for and received a tremendous number of recommendations from the field, not just from headquarters but from the field because that is where the majority of the work happens.

We got 109 proposals, and we are in the process of implementing key elements of those. Later on, so I do not take up all of the time talking about those, we have some very specific recommendations that we are implementing on management reform that will help us in the procurement area.

The third element is construction. A key feature of this president's budget request is the significant resources that are requested for constructing large projects. The deputy secretary will be issuing very soon new construction policy for the Department of Energy. We are committed to getting off of the GAO high-risk list in this area and to ramping up and improving dramatically the construction project execution.

It will happen via a couple of key things. Number one is, instead of committing to a project performance with a design cost, schedule, and scope, we are going to spend more money up front figuring out exactly what we want before we put in cement and ask the Congress to fund something. Then once we, for example, go 90 percent design on some of these large construction projects, and before we start asking for construction money, that fashion will have that baseline locked down solidly.

Another element of improvements in construction have to do with making sure we have the right people. So we will have full federal project directors, fully qualified federal project directors on every single project. We have that now. We have just started that.

A third element has to do with having critical decision points on every line-item project, and having independent cost estimates done. This is a bit new. Instead of having independent cost estimates done at the performance baseline, we are going to do it at end of critical decision one stage in order to have somebody outside of the organization validate the numbers independent of the NNSA.

The final element of why we think we can manage growth has to do with human resources. And, frankly, in this request, the actual increase in personnel that we expect is fairly limited, probably about 300 folks overall. And for an organization of 3,000 people, roughly, that is a very manageable increase that can be put into play.

About half that increase comes in the naval reactor side. The other half of the increase comes in the combination of the defense

programs and nonproliferation side. We feel very confident we can execute that type of an increase. There is a lot I could say about our human resources programs, but in the interest of time—and maybe will come back to that a little bit later on, sir—I would like to turn it over to General Harencak to talk about what is going on with the B–61 and the F–35.

General HARENCAK. Yes, sir. And before, if I may, Mr. D'Agostino, just say a few words about the NPR.

We, of course, want the NPR to be released but we would certainly—and the reason is because we are convinced the defense programs within NNSA that it certainly speaks to this budget and to what we need without getting into what it will say, I will tell you that we have been key members in NNSA at crafting this future NPR product from very early on.

From very early on, there was this wide-ranging and diverse group that came together, and there was very clear consensus from our standpoint of the nuclear posture review that our NNSA equities, specifically, in making sure that we have a safe, secure, and effective stockpile, as the president has asked us to do, required investment.

And this budget reflects early analysis of what the NPR says, specifically, four key areas of them one is completion of design and commencement of construction over the timeframe of the NPR of the CMR building, plutonium work, completion, design, commencement, and construction of Y–12, the uranium processing facility so we can do uranium work, ensuring capabilities for our LEPs—our life-extension programs—specifically, completing the W–76 at a ramped-up production rate and the B–61 in order to make it to the F–35, which I will get to in a minute, and, of course, strengthening our science, technology, and engineering base so we could do all these things without ever having to test again.

So I can tell you from that standpoint, sir, we have been heavily involved in the NPR. And you will find, when it does come out, that there was this very real consensus for our aspect of it for reinvestment in our enterprise to do those and many other things. But those are the main four key areas.

Mr. FRELINGHUYSEN. And, Mr. Chairman, would the gentleman yield for a minute?

Mr. PASTOR. Sure.

Mr. FRELINGHUYSEN. So it is fair to say that all three of you have been integrated into the nuclear posture review process?

Mr. D'AGOSTINO. Yes, sir.

Mr. FRELINGHUYSEN. You have been in from the beginning, and that, as you said earlier, the budget that is before us today, to some extent, reflects already the recommendations that we should anticipate that we have been waiting for?

Mr. D'AGOSTINO. Yes, sir.

Mr. FRELINGHUYSEN. Is that accurate?

Mr. D'AGOSTINO. Yes, sir. Absolutely accurate.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

General HARENCAK. As far as the F–35, if I may, again, another thing that is way above my pay grade, as many things are, is where the F–35 is. Our—my job in defense programs is to produce

a life-extended B–16 that can mate with the F–35 in 2017 for a first-production unit.

That is a requirement that I believe will stand regardless of the F–35 slippage because this is about a weapon being made into an aircraft, an analog weapon now that needs to be made into a digital weapon. This is less about numbers of airframes. In fact, it is hardly at all about numbers of airframes. And it is about designing a system that allows this refreshed weapon to talk to this 21st century airplane.

So we are talking software. We are talking a first-production unit. We believe our entire enterprise is focused on getting this very difficult job done by 2017. And we are talking first-production units. So we are talking, to make that capability to mate a weapon with an airplane.

It does not matter. For our enterprise, we have to produce this life-extended B–61 in time for 2017 so we can begin this mating process.

Mr. D'AGOSTINO. Mr. Chairman, if I could ask Admiral Donald to comment as well on your question because Admiral Donald has got a series of management activities that he has done that talks about cost as well.

Admiral DONALD. I, too, would prefer that the NPR be out right now, but, again, it is even above my pay grade as well. [Laughter.]

I do not think it is in question the fact that the sea-based strategic leg of the deterrent will still be a requirement whatever the NPR—however it comes out, every indication I have, that is going to be a piece of it. And our need to recapitalize the Ohio class does not change because it is really set to a one-for-one replacement in starting when those ships start coming off service around the 2025 to 2026 timeframe.

I recognize that sounds like a long way out, but, for me, what that means is I have to start buying components, designing and be ready to buy components for that reactor plant in 2017. So that is why the timing is as important as it is right now and why it is as if we are going to continue with a sea-based strategic deterrent, that is why this program, for me, starts now.

The second piece as far as execution, ability to execute the amount of money that we have in here, we have designed at Naval Reactors over 30 reactor cores over the history of the program, over 24 reactor plants. We have a very good understanding of the metrics associated with successful design and delivery on time. We believe that—we are confident that we have got the resources in expertise. We are going to have to hire some additional people, as Mr. D'Agostino pointed out.

But, obviously, the way you do that is you draw talent from within the organization that has had experience in doing these things and then backfill some of those other places with new hires. So we do not get too much green labor involved in the critical design work in our reactor plant.

So we have a very clear plan of how to go forward in this design to make sure that it is successful. The funding piece of it is critical because one of our metrics of success is, if you are going to be successful and deliver on time, the design has to be mature. We had good experience in the Virginia-class program with that ship being

between 45 and 50 percent mature in design at the time of starting construction.

We believe we need to be even better than that to get into the Ohio-class replacements and ensure that ship delivers on time. So it is our objective to ensure that design is mature. That is why we are starting now.

Mr. PASTOR. I just want to tell the subcommittee members that we are due to be a vote here in maybe about 10, 15 minutes. But we will stay here as long and then we will come back.

Mr. FRELINGHUYSEN. The focus here has been pretty much on the nuclear posture review. And for some, you might say a vacuum has been created. But you are sort of telling me—telling us collectively you are filling that vacuum because you have had a place at the table. Is that a good characteristic?

Mr. D'AGOSTINO. Yes, sir.

Mr. FRELINGHUYSEN. And when was that? I mean, is that way back when? Or is it ongoing?

Mr. D'AGOSTINO. I would—if I could offer—we have got——

Mr. FRELINGHUYSEN. It sort of worries us here, obviously, we have a budget to meet here, and we have done some things and made some recommendations over the last couple of years that have sort of been based on some answers coming—forthcoming.

Mr. D'AGOSTINO. Right. Yes, sir. We have been involved from the very beginning. The NNSA is a key team member of what we call the interagency process, which includes deputy assistant secretary, assistant secretary level folks getting together, teeing up policy, strategy, and how that impacts the stockpile itself, and then ultimately the infrastructure; that whole line of questioning that the chairman identified in his opening remarks that the committee is interested in doing.

So we started last April in high gear, throughout the summer and into the fall.

Mr. FRELINGHUYSEN. We being those who are at the table or you as NNSA?

Mr. D'AGOSTINO. I was involved in the deputy's committee meetings with the Defense Department.

Mr. FRELINGHUYSEN. And Mr. Simpson sort of mentioned to me this issue of pay grade here. I mean, I assume something is about to be rolled out. It was supposed to be rolled out in February.

Mr. D'AGOSTINO. Right.

Mr. FRELINGHUYSEN. I mean, I do not think there is anything wrong with an ongoing debate at a higher pay grade.

Mr. D'AGOSTINO. Right.

Mr. FRELINGHUYSEN. There are, obviously, treaties and strategic decisions that have to be reached in terms of our negotiations for reductions and stockpiles and so on.

Mr. D'AGOSTINO. Well, this is the president's budget request, and prior to releasing it, the elements that we are asking for were discussed in great detail through the whole change of command within the administration.

So the whole administration supports this request, whether it is the Defense Department, the State Department, the White House, the whole—this is very consistent with our early analysis of the

NPR that we had to take care of the stockpile. We had to reinvest in our infrastructure since, in many cases, it is 57 to——

Mr. FRELINGHUYSEN. We are all for those things.

Mr. D'AGOSTINO. Yes.

Mr. FRELINGHUYSEN. I am not sort of indicating——

Mr. D'AGOSTINO. Right.

Mr. FRELINGHUYSEN [continuing]. We are not for them.

Mr. D'AGOSTINO. And I think what we have before—I have personally reviewed the final versions of the draft NPR, provided comments back. We did this before the budget was submitted. And what is happening right now is making sure that the final policy questions with respect to—that do get discussed—that do not impact this submission are being—the "i"s are being dotted. The "t"s are being crossed. We have to make sure that it is absolutely right.

Mr. FRELINGHUYSEN. Administrator, we are glad you are there. You do provide that level of continuity. You are frank and blunt, obviously, as you sit at the table with your colleagues.

I serve on the Defense Subcommittee on Appropriations, and we, obviously, watch for the alarm, you know, what the Chinese are doing with their subs. I mean, they are going—they are moving ahead. We have struggled to make, come up with a couple each year, try to afford them. And I side in—I guess I cannot talk about that too much, but an interesting thing—combat aircraft with, I think, Admiral Fillman is it and General Scott, one of your Air Force general colleagues.

I must say they were pretty circumspect as to where the F–22 Joint Strike Fighter is going. I know you are involved in the weapons integration, but it worries me here that this delay here. I just want to make sure that you feel that you are at the table each and every day.

Mr. D'AGOSTINO. Yes, sir. I know for a fact I am at the table each day on this particular topic. It has clearly been my focus, and I think the committee has been very clear—the subcommittee has been very clear over the last 2 years in asking very consistently the questions and laid it out very clearly in its request——

Mr. FRELINGHUYSEN. We are counting on you.

Mr. D'AGOSTINO. Yes, sir.

Mr. FRELINGHUYSEN. We are absolutely counting on you.

I know Mr. Simpson has been here, and I think the chairman and I have taken a lot of time. So maybe—and I have all sorts of questions on the B–61 bomb and all sorts of things, but Mr. Chairman, I will be happy to give up and let Mike get in here. [Laughter.]

Mr. SIMPSON. Well, thank you. And thank you all for being here today. It is good to see you again.

A few questions. It might not surprise you that I am interested in the progress on the upgrade of the Building 651, the storage vault in Idaho that NNSA is funding. Can you tell me how it is going? And can you help assure us that we are not spending so much money on the paperwork instead of doing the upgrading?

I understand that the critical one decision package, the paperwork that needs to be done to proceed, is awaiting approval in the Office of the NNSA General Counsel and NNSA National Environmental Policy Act Compliance Office. How is all this going?

Mr. D'AGOSTINO. I think it is going well. I think we are off of top-dead center, which is we are starting to get this moving. Like you probably, I am a bit frustrated about us getting this moving.

We do have the critical decision one package, which is to get the options down to move forward. There were some concerns in the Office of Nuclear Energy with respect to making sure that whatever we do, the work in that facility is consistent with the site's NEPA analysis, figure out do we need to do an environmental assessment, EIS, or are we covered within that existing portfolio because we want to be consistent with what the citizens of Idaho are expecting that are going to be happening in that facility.

I have talked personally to Pete Miller, who is the assistant secretary for nuclear energy, about this project. The key focus of the project is security upgrades of that facility so additional work can get done. What we are working on is making sure that the analysis that we have—making sure that we are crystal clear on the work that gets done and how that impacts or does not impact the existing framework that we can operate in.

With respect to your question on how much we are spending on doing the studying versus the actual work itself, we have spent, you know, roughly in the $20,000 to $30,000 range so far on the review work itself. Given the project is expected, I think, in the $14 million to $15 million range, it is a fairly small percentage, but it is money that is worth spending. And if we have to do a little bit more to make sure the environmental stuff is actually covered, then I am okay with that because that will actually stop us dead in the tracks if we do not get it right on the way out.

I have also talked to Undersecretary Kristina Johnson. The Idaho National Laboratory reports under her leadership. And so she knows that I am interested in getting this project done. I want it done basically. It should not be that difficult to do, but we have to finish and get that paperwork out.

I will personally check on exactly where the document is and get back to the committee. I did not realize it was in our general counsel right now, but I will check on that.

Mr. SIMPSON. I appreciate that. And thanks for the update.

Mr. D'AGOSTINO. Yes, sir.

Mr. SIMPSON. There is an issue about DOD use of DOE labs based on contracting requirements, as you know. You and I have talked about this before. It contained the requirement—the requirement that was contained in the 2010 Defense Authorization Bill. And I understand that there is a waiver through March 31st to temporarily resolves the problem, but that waiver will soon expire. And I do not know if there is a permanent solution yet. Is there?

Mr. D'AGOSTINO. Well, the permanent solution ultimately will be to get the next authorization act that comes out to take care of that DOD work at departmental facilities permanently taken care of—I had the opportunity to talk to some committee staff from both the House and the Senate to make sure that that type of language gets debated and gets voted on.

Of course, that does not start until October 1st, if it makes it through.

Mr. SIMPSON. So will the waiver be extended?

Mr. D'AGOSTINO. We are going to push hard to get that waiver extended. We cannot have a—I cannot guarantee that it will be extended, but our colleagues in the Defense Department, Undersecretary Ash Carter for Acquisition, Technology and Logistics, his staff knows that we want to get this extended.

It came down to the wire when we got that first waiver, unfortunately, from a timing stand point and made us very uncomfortable. And we would like to move forward and get that done.

Mr. SIMPSON. Okay.

Mr. D'AGOSTINO. So I will check on that as well, sir.

Mr. SIMPSON. Okay. I appreciate that.

The pension issue remains a large issue, important issue, across the DOE complex. I suspect that that is true with the NNSA, also?

Mr. D'AGOSTINO. Yes, sir.

Mr. SIMPSON. What are we doing to—are we going to have a shortfall in this year? And what are we doing to address that on long-term means?

Mr. D'AGOSTINO. What we will do with pensions—I mean, part of the initial problem was having consistent and similar data so that we compare apples to apples across our contractor force. And we did not have that initially. And that is a deficiency that the chief financial officer, with the secretary, is working to correct, get consistent data so we understand where the real problem—if there is a real problem or if it is just a problem that is a result of, you know, this is how I calculate how much is in my pension pool.

So most recently, all the chief financial officers from around the Department of Energy got together with the chief operating officers and the department's CFO to look at and make—we are going to be proposing some adjustments to fix and make sure that the department as a whole takes care of its problems. It may result in some reprogramming requests.

I do know I have the data in my inbox right now. I have not had a chance to look at it yet. But I believe we will be okay with the adjustments in this fiscal year. And then what we are planning on instituting is kind of a departmental look at this problem instead of just having it site by site specific problems.

What we do not want to do, though, is punish sites that have done a good job managing their portfolios and rewarding those that, for whatever reason, have not performed as well. So that is an element of this overall calculus.

Mr. SIMPSON. Thank you.

Mr. D'AGOSTINO. Yes, sir.

Mr. SIMPSON. Mr. Chairman, I will wait until after the votes for further questions.

Mr. DAVIS. I often look at the past to determine where we are today and what the future may be. Nobody can really see the future, we can only predict.

But as I look at our investments in many areas in this country, we have, over the last 30 years, basically ignored all infrastructure in this nation. We have built some of our nuclear fleet. As far as investing in our infrastructure, I think we have been very remiss. It appears the only thing we have done since 1980, when we owed less than a trillion dollars, all we have done is invested in debt, and we have done a pretty good job of that the last 30 years.

But when you look at the era of the Cold War and the buildings that we have in many of our research facilities, areas where our national security is in jeopardy, in my opinion, or maybe not in jeopardy but at least where we should have made investments, we have not been doing that.

What I like about this budget is that we start looking at investing in the future. I often hear a lot about Cold War buildings. There are buildings today that were built during the time of the "Bold War," World War II. The boldness of our young men and women—and who went into battle in Europe and Asia.

Many of those buildings that built the weapons and the research and the development going on are today being maintained and not being used. And as a result of that, are actually jeopardizing ongoing programs in many of our research facilities. And one of those being Y–12, for instance, in Oak Ridge.

I had an opportunity to tour some of those buildings that have not been used for decades but are still being maintained. For instance, steam leaks you can hear three or four levels down as you go up to it. And the reason the leaks are there, to repair those and patch those, costs too much money. And so a lot of these buildings that should be torn down we are unable to do that.

I look at the amount of dollars that—we said we have got $25 billion in environmental management. We have got a pretty good head there, I think, in most of these areas. But I think our unwillingness, past Congresses in the last 30 years, the willingness to increase debt without building infrastructure is something that, pre-1980, we would have never done in this nation.

And so we talk about spending taxpayer money. I heard someone say a while ago we are spending taxpayer money. Actually, what we are doing is borrowing money and spending it—obligating our taxpayers in the future with no results from it because I have seen no infrastructure developments since about 1981, but I have seen our debt increase by 1100 percent.

So I am pleased now—and I am sorry I am kind of giving a lecture, I guess. I am kind of pleased now to see us start at least directing dollars toward infrastructure. For the first time, we have made a commitment to build an interstate, to build the lakes that we have, to defend this nation.

So I am pleased with this budget that I am looking at. As you envision removing some of the buildings that I am seeing maintained today at exorbitant cost though the EM funding, taking those buildings down and then making a much smaller footprint, as well as a safer environment for our workers that may be working on unenriched uranium, for instance, what vision do you have and can you predict the future of when we will see some of these old buildings torn down and that footprint will be replaced with safe, very efficient buildings that will no longer be part of the "Bold War" buildings or Cold War building but modern-day technology? When do you see that happening?

Mr. D'AGOSTINO. I see it—well, this budget's goal is to start making that real in fiscal year 2011 and actually, Dr. Ines Triay, who I work with fairly closely, Y–12, for example, we have this vision of taking those 150 acres of highly secure space and dropping it down to 15 acres with a very tight security fence around that. That

saves us a tremendous amount of money in security costs and maintenance costs.

So with Dr. Triay, what we are going to plan on doing is, instead of waiting to make that basic step from 150 to 15, we are going to draw up a temporary fence down the middle and take it in two chunks. What that does is it allows me to start reducing security costs right away instead of waiting for this UPF facility to be finished and completed. And it allows—it makes it cheaper for her to take down those old buildings because, what we are going to do is move the fence to the point that those old buildings are outside of the fence and she can start taking those facilities down with the recovery act resources and resources within her program as they are authorized and appropriated.

So our goal was, let us get this moving. We have started already. The facility called the Highly Enriched Uranium Materials Facility that the committee has supported is being loaded now with highly enriched uranium from the west end of that site. We are probably halfway through a 90-day campaign. Is that about right?

General HARENCAK. Yes, sir. That is correct.

Mr. D'AGOSTINO. In getting all that material from our west end over, that is step one. Step two is cleaning up the rest, moving the other HEU into that building and then building that security fence down the middle. And then Dr. Triay's program can start taking those buildings down.

I think we will see this actually happening within the next few years. I can get you details—I would like to provide the committee a schedule on that example plus a few more across the enterprise.

Mr. DAVIS. And I believe what the committee also needs to understand, we are still maintaining those buildings for environmental hazardous purposes in essence. Even though we have changed the fence, we still have a maintain and keep functions—not process or programs—but keep those buildings open to prevent maybe some type of environmental incident or accident that may occur there.

I am concerned that, if we have an accident in one of those labs or in one of the areas such as Y–12, where we have ongoing critical national defense programs going on, that could shut down the entire process. And so it is my hope that we look into the future and spend the dollars based upon the critical need that we have. And I believe this is an area where we have been remiss doing that.

I am pleased to see this budget addressing that more, but I do not think you have addressed it adequately. I applaud what you have done so far.

Mr. D'AGOSTINO. Okay. Thank you, sir.

Mr. FRELINGHUYSEN. Would the gentleman yield?

Mr. DAVIS. I yield.

Mr. FRELINGHUYSEN. As you make the footprint smaller here, what happens to all of those buildings? I mean, does some of this stuff go to the WIP and some of it remediated on site? And what is the—what lies ahead? I have been down there, and they are doing some things. They are proud of what they are doing, but you have got a huge complex down there. What does it look like, and how are we going to pay for it?

Mr. D'AGOSTINO. Some of it will go to a variety of places. The material that we can move to WIP—and, first of all, we are de-inventorying the Lawrence Livermore National Laboratory of Category 1 and 2 quantities of special nuclear material. That will save on security costs when that job is done in 2012.

Some of that material goes to WIP. Some of the material is going to Los Alamos. Some of it, ultimately, particularly that can be as MOXible material will ultimately end up being put through the plutonium disposition facility and, ultimately, turned into MOX.

So there is a variety of places where this material is going. So we are taking it in bite-sized chunks. Take care of Livermore and de-inventorying the material. Getting the extra material out of the vaults at Los Alamos and moving it as appropriate to WIP, as appropriate or to South Carolina, taking care of our highly enriched uranium, the fact that it is spread out over those 150 acres.

It will go to a variety of places.

Mr. FRELINGHUYSEN. This is the essence—a critical mass of project management of what you spoke and, I think, the progress that you have made and that, historically, the committee has been somewhat critical of.

Mr. D'AGOSTINO. Right.

Mr. FRELINGHUYSEN. And you are, indeed, moving ahead in ways that, perhaps, you have not been able to.

Mr. D'AGOSTINO. Right. I think what I would like to be able to do—I mean, when we first started down this path of having a much smaller but focused nuclear security enterprise, we identified many buildings, by name, by number, that we would be taking down across the enterprise. And we are working our way down that list. Some of these are small-dollar taking down of buildings. Some of these are big-dollar that can only be done by the environmental management program.

Mr. FRELINGHUYSEN. I thank the gentleman for yielding. Thank you, Mr. Chairman.

Mr. PASTOR. We are going to go ahead and vote. We probably will have three votes, don't we? We will be probably 20 minutes.

Mr. D'AGOSTINO. Yes, sir.

Mr. PASTOR. I think we have coffee back here and doughnuts. [Laughter.]

Mr. D'AGOSTINO. Very kind, sir.

Mr. PASTOR. Or work on the report so you can get it to us. [Laughter.]

Mr. D'AGOSTINO. Thank you, Mr. Chairman.

[Recess.]

Mr. PASTOR. We were scheduled to finish around 12 o'clock. Obviously, votes get in the way. And we have Mr. Fattah who joined us. Could we impose you on and maybe shoot for another round of questions, and then we will see where we are at?

Mr. D'AGOSTINO. Sure.

Mr. PASTOR. But my contract says I am now on time-and-a-half. [Laughter.]

I do not know whether we have it in the budget, either. [Laughter.]

You know, we have other schedules, and I do not want to impose on that, also.

Mr. D'AGOSTINO. Mr. Chairman, we are here for you, sir.

Mr. PASTOR. I understand. But, you know, we also have scheduled that we have.

So, Mr. Fattah.

Mr. FATTAH. Well, I think that there is some data in here, but I am interested in this whole issue of the critical skill shortages, and I have had briefings from the agency about the short-term and long-term horizon in terms of retirees and how the efforts are going to be in a position to make sure that we can do the important work that you have to do but have the capacity to do it.

So if you would like to make a comment on the record, that would be helpful.

Mr. D'AGOSTINO. I would be glad to, Mr. Fattah. One of the things that I am very proud of that we need to continue to work on is our human resource capital programs. And we have a number of them that you probably are aware of. One of them is called the Demo Project where we are looking with Office of Personnel Management at providing a better way to recruit people into our program.

The Demo Project has provided for pay and performance linked together and, instead of having the 15 general schedule bands, we have four or five pay bands and allow people to move up within that area. And what we have found is that younger folks particularly like the idea of being able to move up into an organization fairly quickly.

Another thing we have is our Future Leaders Program. In fact, we have—if I could ask some of our future leaders—I think there might be a few in the audience here—if you can stand up just so—do not be shy. Okay.

These are folks—you do not have to sit down on my command or anything——

[Laughter.]

I guess I always wanted to do that. [Laughter.]

But these are folks, frankly that come from a variety of different backgrounds from across the country. We recruit a class of about 30 on any particular year from local universities in the areas and the neighborhoods where we operate. And they come either right out of college or graduate programs. Lisa is a former teacher. They bring just a wonderful array of diversity into our programs because it is that richness of coming from different directions that I think will be strong.

Ultimately, these folks back here will be running these organizations 10 to 20 years from now. We have to do more of that as well.

As you know, Mike Kane, who is my lead for management and administration, is very good about looking for talent in a variety of places for our programs, with historically black colleges and universities, with drawing there, with establishing various positions in those universities to push science and technology.

Admiral Donald and I were just talking during the break. While you all were working, we were just chatting about the need to continue and the difficulty in recruiting talent in the program.

And, sir, I do not know if you would want to make a comment about that as well.

Admiral DONALD. Absolutely.

Mr. PASTOR. Please turn your mike on.

Admiral DONALD. Is that good?

The people side of our business is the linchpin of success. I mean, it really always has been getting the right people to do the work that we do. And we are going through the exact same issue that Mr. D'Agostino's nuclear weapons facilities are in that we have got a demographic that is—it is bimodal. You have got a lot of great experienced, older folks who are getting ready to leave to well-deserved retirement and a bunch of really bright young folks coming in the front end with a bit of a dip in the middle.

Recruiting the best people is clearly important. A wide net being cast. Diversity clearly being an objective of what it is. It is very challenging because, particularly, when you are looking for minorities in the business, there is a lot of competition for talent in that area. And we work very hard right alongside everybody else to make sure that people understand what it is we do, why it is important, and why we think they would be successful at it.

And it is an ongoing effort. We have improved in that area, not as good as we need to be, obviously. We can do more. As far as dealing with the retirement side, the people who are leaving there, the objective is to transfer that knowledge to the younger folks as efficiently and effectively as we can.

The work that is in this budget this year, the additional work that we are bringing in, is a wonderful opportunity to transfer some of the core—reactor core manufacturing skills, reactor design skills, all of those to a new generation that will be able to do this business for us in the years to come.

So it comes at a good time to do it. It is going to be a challenge because we are bringing a bunch of new folks into a business that is high precision. It is high consequence if we do not do it correctly. But I feel that we are in a good position to do it, and we are ready to move forward.

Mr. PASTOR. Last year, as I was being briefed, one of the things that I recall was that the F–35 and the bomb, as I refer to it, were kind of going in a time cycle, that they were integrated and it was very important. And if we had any slippage, the digital bomb, would set us back and we wouldn't able to put it on the F–35, but it was so important that they were integrated, that they were on the similar path.

And I thought today I heard, because even though you may have slippage on the F–35, that it does not matter. We have got to continue this bomb because—and the progress on this—because there is really no linkage, and it just has to be ready—what was it?—2017? I think I remember 2017.

Now, which way is it?

General HARENCAK. Well, I am sorry if I gave the impression that there is not a linkage. There is linkage in the F–35 and the bomb. Where there is not linkage——

Mr. PASTOR. In its development?

General HARENCAK. Yes. In its development, yes.

Mr. PASTOR. I think there is linkage.

General HARENCAK. Yes, sir. In the development because what we are really talking about is any large program, like an F–35, has

many milestones that it has to reach, which one milestone builds on the next milestone, builds on the next one.

Our milestone that we, in NNSA, have to deliver is that milestone which is 2017 for a first-production unit. Regardless of the number of F–35s that were planned to be in 2017 and are there or not, our milestone is to connect the digital B–61 to the weapon. That creates—that milestone then allows continued development in the program to proceed further down the line.

We call that in the Air Force a block. It is actually a block upgrade. So what is not linked is the numbers of airplanes or anything else like that that, should the F–35 numbers slide. We are—our milestone that we have to meet is—our requirement from DOD is to do it by 2017 is to link—get that bomb to be able to talk to that airplane. So there is a linkage.

I apologize if I made it sound like there was somewhat less of a linkage. What is not linked is overall numbers of the F–35 to this effort that we are responsible for.

Mr. FRELINGHUYSEN. Would the gentleman yield?

Mr. PASTOR. Sure.

Mr. FRELINGHUYSEN. Where does this tie-in to NATO?

General HARENCAK. Well——

Mr. FRELINGHUYSEN. They are our partners here.

General HARENCAK. Exactly. And the reason the F–35, it deals with extended deterrents in Europe, that is the aircraft of choice of our NATO allies. And it also deals with retirement of legacy aircraft in the Air Force.

Mr. FRELINGHUYSEN. There is an issue of weapon compatibility.

General HARENCAK. Exactly, sir.

Mr. FRELINGHUYSEN. How does that fit into the overall scheme of things? If the Joint Strike Fighter is delayed, how is this all going to be synchronized, in a way that we are actually going to have something? We are doing away with the F–22 or stopping the production, and so forth——

General HARENCAK. Again, we are talking, sir, about one milestone in this very large, complex F–35 program. The F–35 will have planes flying in 2017. You know, we are going to be able to take our first production unit of the B–61 and mate it to get them to talk.

So, again, that milestone, which is us getting the B–61 ready by 2017, has not slipped for us. And we—it will because we are talking about a first-production unit for that. And that will—so assuming there is an F–35 that we could work with to mate in 2017, and there will be, we still need to have the B–61 done by then.

Mr. FRELINGHUYSEN. If the gentleman would continue to yield——

Mr. FATTAH. I will tell you what, I will just give you the time.

Mr. FRELINGHUYSEN. Digital interface here. How is that going to come about?

General HARENCAK. Well, as I said——

Mr. FRELINGHUYSEN. The aircraft with the bomb?

General HARENCAK. Exactly, sir. You know, this is—the aircraft is a digital aircraft. The bomb currently as we have it is an analog bomb. So we have to life extend the B–61 to give it the electronics

and the technology that did not exist 30 years ago when the B–61 was designed to enable it to talk to the software of the airplane.

Mr. FRELINGHUYSEN. So the larger question, are you going to give me some time? Okay. Thank you very much. And I will be brief.

Sort of getting back to what I was talking about earlier with Mr. D'Agostino, strategic context of what we are talking about here, you know, our naval nuclear fleet, an overview of how we are going to look versus our adversaries or, let us say, our competitors—China, Russia, India. How would you characterize where we are now, where we are going to be in the future, and where we are going to be relative to the development of what they are doing. Their navy is not all nuclear, a lot of it is diesel, right?

Mr. D'AGOSTINO. Yes, sir.

Mr. FRELINGHUYSEN. Diesel subs.

Mr. D'AGOSTINO. Yes.

Mr. FRELINGHUYSEN. But can you put something into a larger context here?

Mr. D'AGOSTINO. Yes, sir. I would be glad to.

The larger context is recognizing that each leg of the strategic triad provides certain things. The stealthiness of the seat submerged leg of the triad, actually the presence of the bomber leg of the triad because that actually provides an ability for the president——

Mr. FRELINGHUYSEN. But this bomber, though, is not the F–22. It has a degree of stealth, but it is not——

Mr. D'AGOSTINO. But it is—over time, it is something saying, well, we are maybe a little bit saber rattling and saying we are concerned about that, we will move a squadron of something over into a certain area. It sends a signal and allows things to decompress with respect to global security situation.

I mean, the administration is committed with respect to the F–35. Our obligation is, when that first unit is ready, we have the first unit ready so that they can line up together.

Mr. FRELINGHUYSEN. How would you compare, let us say, the investments to the extent we know them and can talk about them that the Russians and Chinese are making in aircraft, nuclear capacity, naval capacity?

Mr. D'AGOSTINO. Right. I would compare them and then ultimately I would be happy to get into maybe a different setting so we can talk details.

Mr. FRELINGHUYSEN. In general.

Mr. D'AGOSTINO. But in general sense, what is happening is, up until this budget request, what we have been doing is just maintaining and trying not—not letting anything break. And that is, taking care of the stockpile without underground testing.

What we have not been doing is investing for the future and providing a sustainability on that front. Other nations have said publicly, frankly, that they are going to move forward in a visible way and increase their investments and have done so.

Details, I can provide in a classified setting. But, in general, we have not been keeping up. And this budget request the president's signal that he cares about nuclear nonproliferation because of the increase there and the charge to secure material in 4 years. But

he also knows that you cannot reduce the size of the stockpile without maintaining the stockpile and maintaining it in a way that is going to have some longevity and sustainability because these things are not going away in his lifetime, as he has said. And then it is our job, ultimately, to make sure that they are taken care of in the best possible way and, particularly, to deal with the threats that we believe we have from a safety and security standpoint that we know we can address.

Mr. FRELINGHUYSEN. Taken care of by civilian personnel and, obviously——

Mr. D'AGOSTINO. Yes, sir. Taken care of——

Mr. FRELINGHUYSEN. The military component is important. I am more familiar—I want to thank Admiral Donald for the opportunity with Mr. Davis to be on the USS Annapolis who, at that time, had a Captain Brunner, I believe, from New Jersey, for that unique opportunity to really see firsthand. First of all, the youth of the people that are responsible for that part of the nuclear submarine, obviously, working side by side with those that do not have those military occupations.

It really is remarkable what is done. Of course, I did learn, of course, that those young people are taken away by the private nuclear sector at three or four times the salary of what you guys are paying.

Mr. D'AGOSTINO. Yes, sir.

Mr. FRELINGHUYSEN. Remarkable.

Mr. D'AGOSTINO. Yes, sir.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Mr. DAVIS. I have just one brief question, and I will not make many comments, but the fact that we were on that submarine, I can assure you, I felt safer on that sub than I will on my mule that I ride this weekend. [Laughter.]

Sometimes he gets a little skittish if I do not ride him for 2 or 3 days. The weather has been bad. And so I feel much safer to that sub than I will this weekend.

I look at our installations throughout our country and, obviously, the ones closest to home are the ones that we visit most frequently. And being on that nuclear sub and realizing that we have 70 vessels, I think, that are fueled with the uranium that is processed in Oak Ridge——

Admiral DONALD. Eighty-two.

Mr. DAVIS. Eighty-two. That is a large number.

Admiral DONALD. Yes, sir.

Mr. DAVIS. But realizing that the fuel comes from, basically, that area in the eastern part of my district, if there were an accident in even the EM buildings that we have identified that need to be taken down—this would be for the general—if there was an accident or something that would shut down those operations, what impact would that have? And if it was—if it had to be shut down for a considerable time, how harmful would that be to our ability to be able to continue to keep our vessels in operation?

And I know that that is a concern that I have and I hope maybe others may have as well.

General HARENCAK. Sure. The facility, particularly, the facility at Y–12 is important to our business because that is—we are a cus-

tomer of them, and that is our sole source for fuel, the materials that we need to build the reactor cores that go into our vessels.

We, obviously, manage that inventory very carefully. We take into consideration potentials for stoppages and try to build some margin into our manufacturing processes to ensure that we can deal with the unforeseen should it occur. However, if it were to be out of commission for lengthy periods of time, that would be a real problem for us, a significant problem for us.

And we are certainly interested and a strong proponent of modernization of that facility. That is in the program that exists before you today here to ensure that we continue to be viable and that we do not have that risk that is out there that exists today in the availability of that facility.

Mr. DAVIS. In particular—I am sorry.

General HARENCAK. Also, besides, obviously, the damage to the nuclear Navy that that would cause, we are a system of systems. And that would cause ripple effects throughout everything. Being able to produce and work with uranium is key to nuclear detection, nuclear security, nuclear forensics, and absolutely everything else we do, and the ability to produce everything that has to be done.

So that is why this is a single-point failure, and it is a 67-year-old building.

Mr. DAVIS. And our involvement with dismantling some of the Eastern European capabilities of the past would be, also, important, would it not be?

General HARENCAK. Absolutely, sir.

Mr. DAVIS. Mr. Chairman, thanks.

Mr. SIMPSON. Thank you, Mr. Chairman. I just want to meet Lincoln's mule. [Laughter.]

Because if you feel safer on that mule—or on the submarine than you had on that mule—I know when my horse breaks a leg, I can get off it. [Laughter.]

I kind of compare submariners a little bit to guys who land to aircraft carriers. That is kind of a controlled crash. [Laughter.]

Scary places.

But, anyway, we have been talking a little bit about the D&D work, and I just want to say that EM is doing a great job in the D&D work all across the complex, I think. They have done a particularly good job in Idaho in reducing the footprint size and, as you said, reducing the fence and the security needs and those kinds of things. And that is why I love that these things are being talked about, the special fuels facility in Idaho and other places.

Just this last year, Idaho received four shipments of sodium bonded debris from the Sandia Lab for storage and treatment. And movement of the material to Idaho allowed Sandia to close a high-security facility and reduce its security costs.

And I was glad to see that you put a $5.8 million request into your budget to treat the Sandia material in the fiscal year 2011 budget. So I appreciate that.

Admiral Donald, you have got great fans out in Idaho. You do a great job out there, and the people of Idaho respect what the Navy does out there.

You mentioned during your testimony that, when you are doing the Ohio-class submarine, you are looking at a life of the ship core

of 33 years or something. What was the length of the original core when the first submarines went nuclear?

Admiral DONALD. The USS Nautilus corps lasted for 2 years. And the work that we have done out in Idaho has allowed us to take a core off of a ship, we take it out to Idaho, we put it in our water-pit facility out there, and we examine it, and we learn from it. Every single one of them, we learn.

And we take that knowledge that we have gained as a result of doing that, and we improve every core that we build. As I have mentioned, the Virginia-class core, as a result of all that examination and the technical work that goes on in our laboratories, is going to last for 33 years. The USS Los Angeles just completed her lifetime—her first core lasted for 20-some odd years.

We are shooting for 40 on the Ohio class replacement, and the work that we do in Idaho both at the extended core facility and at the advanced test reactor is going to be critical for that work to be successful. And I believe we will be, but there is a lot of work that needs to be done.

Mr. SIMPSON. It is incredible that the first cores lasted 2 years and then it had to be refueled.

Admiral DONALD. Yes, sir.

Mr. SIMPSON. And now we are talking about cores, whether they are aircraft carriers or submarines or whatever last the life of the ship. You fuel it when it is commissioned, and you defuel it when it is decommissioned.

And when you talk—I was out on the Harry Truman and talking with the individuals out there. And it used to be that, if they were out in the ocean and they got orders to go to the Mediterranean, they had to wait for a diesel fueler to catch up to them and give them the fuel and so forth to make it.

Now, they carry enough fuel because they do not have—they have got all that extra space that they can actually fuel the other ships to get going.

Admiral DONALD. That is what they do.

Mr. SIMPSON. Yes. It is stunning the advances that have been made because of the work that is done out there at the advanced test reactor and the core facility.

I understand that much of the existing infrastructure that you talked about during your testimony is over 50 years old, needing to be replaced. Could you give us some details on what you plan on doing with the $125 million extra that is in this budget to address that?

Admiral DONALD. Yes, sir. The issue particularly unique to Idaho is the extended core facility and, specifically, the water pit. This is a very large swimming pool, if you will. It is about a thousand feet long, 128 feet wide, and about 45 feet deep. It was designed—much of it was designed and built 50 years ago. And it is approaching the end of its useful life.

It was designed as a research facility, and it is built that way. It is a linear facility. Well, over the years, that has morphed into it is a research facility, but it is also a production facility now to take the spent fuel out of the water pit and move it into dry storage so that it is ready to go, whether it is to a repository or whatever the end state of that fuel is going to be.

We have invested heavily to put that production facility in place, and we have been in production since 2005. What we have learned over the course of that evolution is that this facility was never designed to do that, and it is not particularly efficient. And we are starting to run into maintenance problems and costs associated with that.

We believe that now is the time to do the recapitalization. First, because it is a 50-year-old structure; second, because if I get it done by 2020, I can save some money on reconfiguring the space for different types of fuels that we will bring in.

So we have done the mission-needs statement. That has been submitted. It has been approved. We are now in the design—in the preliminary concept design work. That is under way right now. And, ultimately, the plan is to replace that water pit with a modern facility that meets current standards because the current one does not meet current standards. It is adequate, but it does not meet those standards. And make a more efficient facility so we can better process that fuel and maintain that facility out there for the time that we need to, which is for a very long time.

Mr. SIMPSON. I appreciate that.

Admiral DONALD. Yes, sir.

Mr. SIMPSON. Not so much a question but a statement. As you know, the ARRA funding that went out and the EM work that is being done at the lab and cleaning up the lab, they are ahead of schedule and, actually, below cost, which—you know, and they are going to probably, in 2011, the latter part of 2011, face some layoffs of D&D workers that are out there.

I understand the naval reactor facility has some D&D work to do. I want to work with you.

Admiral DONALD. Yes, sir.

Mr. SIMPSON. As that comes up, when we have the trained work force there and the equipment and so forth to do that kind of stuff, it may be advantageous to take advantage of that work force instead of laying them off and then rehiring them at a later date to do some of the D&D work at the naval reactors. So I would like to work with you on that issue.

Admiral DONALD. Yes, sir.

Mr. SIMPSON. One other question. As you know, we have an agreement with the state of Idaho to have the fuel moved out of Idaho by 2035.

Admiral DONALD. Yes, sir.

Mr. SIMPSON. The decision by the Administration to not proceed with Yucca Mountain and establish a blue-ribbon commission, report in 2 years, decide what we are going to do on that—will that affect our ability to meet that agreement with the state of Idaho, and if so, if it does affect it, what will be the impact?

Admiral DONALD. Yes, sir. In the near term, I would say that—no effect because we are going to continue on with the effort that we put in place to go ahead and continue to move fuel out of wet storage into dry storage in a road-ready condition for whatever the eventualities may be. And these are very robust containers. We put the fuel in the containers with the intention that it never comes out again. It does not have to be repackaged.

So we are going to press on with that, and we have a plan to execute to what the 2035 deadline would require. However, at some point in time, a decision is going to have to be made, and some option is going to have to be made available because, right now, there is no end state if Yucca Mountain is not available.

The blue-ribbon commission is, I believe, their charter has been issued now, and they are off to go work on that. We are involved to the extent that we are advisers to the committee. And I think—I am confident we will make sure that they understand what our equities and what the state of Idaho's equities are in this and arrive at a solution that makes sense for everybody.

Mr. FRELINGHUYSEN. If the gentleman would yield.

Mr. SIMPSON. Sure.

Mr. FRELINGHUYSEN. This is not the only legal challenge you are facing. It could come from Idaho, Washington State. I assume you are geared up here.

Mr. D'AGOSTINO. Absolutely. I think the key for us——

Mr. FRELINGHUYSEN. Besides what we are going to do with our domestic——

Mr. D'AGOSTINO. Right.

Mr. FRELINGHUYSEN [continuing]. Waste.

Mr. D'AGOSTINO. And there are connections—the blue-ribbon commission is not just Yucca, there are connections in the nuclear industry that the blue-ribbon commission is going to have to address. Admiral Donald and I are going to be front and center with respect to commitments that we have made or that our organizations have made.

Mr. FRELINGHUYSEN. You are going to be very much at the table as you were in terms of developing the nuclear posture review.

Mr. D'AGOSTINO. Yes, sir. Certainly, to make sure that we have an appropriate path established. I mean, this is not something that we want to take to the 11th hour. We want it built in up front with respect to taking care of this material.

Mr. FRELINGHUYSEN. I thank the gentleman for yielding.

Mr. SIMPSON. Well, I appreciate that. And it is an important issue, and we will be discussing that with, I am sure, the secretary when he has his hearing there about how we are going to proceed with that.

But I do want to thank all of you for the work you do. I think it is a great agency that does great work, and I look forward to working with you so solve some of these problems.

Mr. D'AGOSTINO. Thank you.

Mr. PASTOR. Let me—and this is for the record. As we talk about Yucca Mountain in last year's bill and the blue-ribbon committee was created, it was the intent of this subcommittee, and it is law now because the president signed it, that Yucca Mountain was not off the table. Yucca Mountain would be under considerations along with all the other considerations, that Yucca Mountain would be, also, considered. And so I just want to remind you that that was the intent of this subcommittee, and it was the intent of the Senate because they signed off on it.

Could I just bring it to your attention, since you are going to be at the table, to remind them that Yucca Mountain is still on the

table and needs to be considered along with all the other deliberations.

Mr. D'AGOSTINO. Yes, sir.

Mr. SIMPSON. Mr. Chairman, if you would yield for a just a second.

Mr. PASTOR. Sure, I will yield.

Mr. SIMPSON. I just read the guidelines that were given to the blue-ribbon commission last night, and I read them very carefully. And there is no mention of Yucca Mountain in there. So it is not off the table as far as the instruction go, but as far as what the commission has been told, might be a different story. And that is something that we need to ask about during the hearing with the Secretary.

Mr. PASTOR. Well, I am sure it is going to come up again, but since the administrator is at the table——

[Laughter.]

And he is before us—he is before us, I just want to remind him that, in the final bill that was signed by the president, the intent of this subcommittee and of the House and the Senate—was the blue-ribbon committee—commission would consider Yucca Mountain in its deliberation.

So just to remind you, and you are there.

Mr. D'AGOSTINO. Mr. Chairman, I got the message, and I will definitely——

[Laughter.]

I will be talking to the secretary today. I actually am scheduled to talk to him about a number of things, and as you saw me write a note, I put it on my list to talk to the secretary about. So I will make sure that gets passed, sir.

Mr. FATTAH. Thank you. You know, when we are looking at these things, you know, we are looking at where the pluses are and where the minuses are. Now, you have already stated, given the 10-plus percent increase on the weapons side, moving from a flat line for many years.

And on the minus side, there is a $50 million reduction in terms of the protective forces, particularly—you know, when you look at Oak Ridge, you look at some of these other issues. Now, this is a 6 percent or so reduction. How many actual job spots are being cut? And do we have a view that confirms that these cuts are sustainable and still get the job done that we need done?

Mr. D'AGOSTINO. Yes, sir. We believe we can make the reductions based on a number of reasons. We won't be conducting layoffs of the security force. Our approach will be—normal attrition and will address some of that.

The other piece of this has to do with our ability to employ technology to reduce security costs. We have a couple of really good examples of how a small investment in technology has allowed us to save, you know, on the order of $1, 2, 3, and 4 or 5 million per year depending on the technology.

An example is a thing called an MDAR. It is a mobile detection and ranging system that is essentially a small unmanned vehicle that we deploy—and I won't say where the sites are because it is not pertinent for public discussion, but it has saved us on the order

of $3 million a year in not having a man on security posts way out kind of in the perimeter.

The other piece—you asked a question about how do we know that we think we can make this reduction without having an impact on security. We have undertaken what we call—what is known as a zero-based security review where we will have teams of people working with—hand in glove with the security forces—a small group from headquarters on the inspection side—working out in the field. We have just completed one at the Nevada test site, and we have conducted simulated exercises, and we think we can drive some significant savings at each of our sites.

What we are going to do is go validate that which can actually happen in anticipation of some of the changes that we have proposed in fiscal year 2011. So it is a combination of using technology, of using attrition, of using a zero-based security review, which we did at Nevada and has yielded some impressive results. And we are going to take it across the enterprise to try to drive efficiencies in the way we do business.

Thank you, sir.

Mr. PASTOR. Thank you. Mr. Wamp.

Mr. WAMP. Well, as the ranking member of Military Construction and Veterans Affairs across the hall, we have had Secretary Shinseki there all day. And I know that Chairman Edwards, who also serves on this subcommittee and asked for me to come and represent he and I here just to make sure you understand that we know the importance of these matters as well.

But we always flinch when a member walks in at the very end of the hearing because you know they are likely to ask something that has already been asked, which is redundancy. And they always come in and extend the length of the hearing. [Laughter.]

I choose to do neither, but I want to thank you all for your service. And I just want to pick up a little on where Congressman Davis from Tennessee was on the need for the IFDP and to make the footprint smaller, the site at Y–12 more efficient, and make these investments while we can because the ongoing maintenance cost is a lot greater than going ahead and making the investments to modernize the facilities. And I am grateful for that.

But, Mr. D'Agostino, I know that OMB clears some of these numbers and that you have advocated the advancement of UPF. You have built strong support at the DOD for the project. There is now consensus. I think every president, regardless of their party or their ideology, when they are new, they come in as president and find that there are certain realities that they have to deal with no matter what their political ideology was. And I am grateful that President Obama was not immune from that either over the last 15 months to know that certain things we have to maintain investments in and, certainly, the nuclear deterrent is one of them, and a safe and reliable stockpile and the need to build things like UPF.

Just in a few weeks, maybe 2 weeks, we are going to have the celebration of the HEUMF in Oak Ridge, which was built efficiently, effectively. It is an unbelievable facility. Secretary Chu will be there. I do not know, will you be there?

Mr. D'AGOSTINO. I will be there, sir.

Mr. WAMP. You will be there, and I will be there. And I look forward to that. And that was completed, big project. And the UPF will follow.

But my question for you, because the CMRR in some of the labs, I think, took the big chunk of the increased money that you asked for, and OMB makes those decisions, I understand that. But can we look for a 2012 request for UPF in terms of moving forward with construction?

Mr. D'AGOSTINO. One of the—I will answer your questions, but I want to put it in a little bit of context. And I will maybe—we can—I am not sure exactly what we have in fiscal year 2012 for UPF.

We proposed and OMB does, ultimately, make the final decision on what the administration is going to present to the president, but the funding profile that we asked for in the NNSA is what we received from OMB.

It was based on the principles of project management which says we want to spend more time up front in designing a facility so we know what we are designing and have a good idea exactly what the cost is, the schedule, and the scope is of the facility before we start constructing and then find out, well, we did not quite finish that part of the design. Then we come back to you, sir, and then things look pretty ugly, basically on myself and my organization.

So we are going to—for both facilities, we are going to approach it in a manner that allows us to do the site prep work and the long-lead material work up front because you can separate those out. But then spend all of our time before we proceed with defining cost, schedule, and scope and getting 90 percent design completed. Whether it is for the CMR facility, or whether it is for the UPF facility, we are going to use the same types of principles.

And I believe that is the responsible way of doing it. There is—my commitment and, you know, when the question comes up, well, do you build one before the other, I said, no, you have got to build both of them because both are incredibly important. They are both in two different parts of the country, they are not going to run into each other, they are not going to hurt each other. And the budget and program we have laid out actually commits to building both of those facilities.

And it will extend beyond the 5-year window that we have—you know, we submit a 5-year look ahead, and there was going to be some work that is going to have to continue in years 16 and 17. Is that right, sir?

So I will have to figure out when that first blade of dirt gets turned over and get back to you specifically on when that is. And I think that will be part of our decision to move forward on site preparation and long-lead material procurement for that facility.

Mr. WAMP. Well, I thank you all three for your service because I really feel like, particularly you, Tom, you have risen above the divisions to build unity around this most important mission of our federal government to maintain this deterrent and to keep our facilities as competent and modernized as possible. Even though it has been a difficult task for you, you have had a very good last 15 months in a difficult environment given where you started from.

And I hail that, and we really should all hail it in a bipartisan way.

Mr. D'AGOSTINO. Thank you, sir.

Mr. WAMP. Thank you.

Mr. D'AGOSTINO. Appreciate the support.

Mr. PASTOR. And I join you in hailing it. [Laughter.]

I join my colleagues in thanking you for your service——

Mr. D'AGOSTINO. I am humbled by it.

Mr. PASTOR [continuing]. And for being here this morning. And remember, in the opening statement, we had time for questions for the record. So if you could give us a response as quickly as possible. I look forward to seeing you in the very near future to talk about some of the questions we asked in 2007 and 2008 and 2009 and see how that is coming along. [Laughter.]

Mr. D'AGOSTINO. Yes, sir.

Mr. PASTOR. And in your conversation with the secretary, to remind him about the blue-ribbon commission.

Mr. D'AGOSTINO. I will do that today.

Mr. PASTOR. And we thank you for your service. We thank you for your time. And that concludes the meeting. Thank you.

QUESTIONS FOR THE RECORD

ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE
HOUSE COMMITTEE ON APPROPRIATIONS

NATIONAL NUCLEAR SECURITY ADMINISTRATION:

DEFENSE PROGRAMS AND NAVAL REACTORS BUDGET HEARING

MARCH 4, 2010

Topline Spending

Mr. Pastor and Mr. Frelinghuysen. After years of relatively flat weapons budgets, you are requesting a 10% increase for fiscal year 2011. We've heard this described as (a) needed to replace failing components of the weapons, (b) to add new features to the weapons, (c) to modernize and replace obsolete or unsafe buildings, and (d) to build support for arms control treaties. What is the relative importance of these four factors? How would you rank-order them?

Mr. D'Agostino. All of these factors are very important – and equally important to NNSA's crucial role in implementing President Obama's nuclear security vision. The funding increase in the budget request would allow us to support each one more fully starting in FY 2011.

Based on a preliminary analysis of the draft Nuclear Posture Review, the Department concluded that maintaining the safety, security, and effectiveness of the nuclear deterrent without nuclear testing – especially at lower stockpile numbers – requires increased investments to strengthen an aging physical infrastructure and to sustain a depleting technical human capital base across the Nuclear Security Enterprise. As such, we are requesting more than $7 billion, an increase of 9.8 percent over the current year, in the Weapons Activities appropriation that would address each of the points you have raised. The increase would ensure the capabilities required for stockpile management and for the ongoing Life Extension Programs are available, per your points (a) and (b).

Recapitalizing our nuclear infrastructure, your point (c), represents an investment in transforming our outdated nuclear weapons complex into a 21st century Nuclear Security Enterprise. Part of the increased funding would continue the design of the Uranium Processing Facility at the Y-12 facility; and the design and construction of the replacement for the Chemistry and Metallurgy Research facility at the Los Alamos National Laboratory. These are the key modernization efforts for capabilities underpinning long term support to the stockpile and the President's nuclear security vision.

Per your point (d), the funding increase would also strengthen the Science, Technology, and Engineering base capabilities that underpin stockpile stewardship without nuclear testing, as well as all other NNSA nuclear security activities; and, reinvest in the scientists, technicians, and engineers who perform the mission across the Nuclear Security Enterprise. The investments in the Weapons Activities budget will enure high confidence in the technical performance of warheads retained in the stockpile without nuclear testing. The United States will thus be able to shift away from retaining large numbers of non-deployed nuclear weapons over time. These capabilities, and others funded in the Defense Nuclear Nonproliferation appropriation, are keys to supporting the nation's arms control efforts and treaties.

Mr. Chairman, we are mindful that with the increased resources provided by the Congress comes an increased responsibility to be effective stewards of the taxpayer's money. NNSA will continue to promote proactive, sound management reforms that save money, improve the way we do business, and increase efficiency of our operations.

Mr. Pastor and Mr. Frelinghuysen. Please provide for the record detailed execution plans for the fiscal year 2011 request for the following programs: Directed Stockpile Work, Science Campaign, Advanced Simulation and Computing Campaign, Readiness Campaign, Readiness in Technical Base and Facilities, and Cyber Security. These plans should include for each program

descriptions of sites and capabilities encumbered; the staffing requirements in terms of full-time equivalents; additional hires or skill sets required; descriptions of actions taken to ensure effective and efficient use of resources-e.g. oversight; comparisons of the request to estimated current year execution or fiscal year 2009 execution; and an estimated obligation and expenditure schedule by quarter for fiscal year 2011.

Mr. D'Agostino. The requested detailed budget execution plans will be provided to the Committee under separate cover by April 16, 2010.

Late Nuclear Posture Review

Mr. Pastor and Mr. Frelinghuysen. Mr. Administrator, I have to tell you that I am disappointed by the fact that the Nuclear Posture Review is late and getting later. Originally it was scheduled for release February 1. Now it is further delayed. So we are here today without the benefit of this critical information. Do you expect that the Review will fully answer all the questions on nuclear strategy, stockpile and complex that this Committee posed in its fiscal year 2008 Appropriations report? It was the absence of this information that caused the Committee to deny funding for RRW in fiscal years 2008 and 2009, and for the B61-12 nuclear bomb in fiscal year 2010.

Mr. D'Agostino. Yes, the combination of the NPR and the NNSA Stockpile Stewardship and Management Report will answer all of the questions on nuclear strategy, stockpile and complex that the Committee posed in the 2008 Appropriations report.

Mr. Pastor and Mr. Frelinghuysen. Do you expect that you will follow the sequence we have laid out – that is, first the strategy, then the stockpile derived from that, and then the complex plan derived from the stockpile plan?

Mr. D'Agostino. Yes, that is the sequence that was used for the NPR and our NNSA Stockpile Stewardship and Management Report.

Nuclear Security Enterprise

Mr. Pastor and Mr. Frelinghuysen. You have expressed a desire to move the NNSA and its nuclear weapons complex toward a more integrated Nuclear Security Enterprise (NSE). How would you best define this concept of a "21st century NSE?"

Mr. D'Agostino. We define our concept of a "21st century Nuclear Security Enterprise" as a smaller, safer and less expensive enterprise that leverages the scientific and technical capabilities of our workforce to meet our nuclear security responsibilities.

Mr. Pastor and Mr. Frelinghuysen. What are the key differences between the way the NNSA is currently organized and operated and how it would be organized and operated under a fully-realized NSE?

Mr. D'Agostino. Under a fully-realized 21st century Nuclear Security Enterprise, we expect the following:

- Overall enterprise will be emphasized. We expect our individual sites to be integrated and interdependent in a manner that demonstrates trust and reliance on each other. This will be reinforced through multi-site incentives for contractors and performance management plans for federal employees. In some cases, we may place single contracts for multiple sites to emphasize enterprise rather than "site-centric" behavior.
- Essential capabilities will be maintained at "Centers of Excellence". Specific assignments are made to ensure both the existence and viability of essential capabilities needed to meet our mission responsibilities. Each center of excellence will focus on their assigned area of responsibility (e.g., plutonium, uranium, assembly/disassembly, environmental testing, etc.) to "keep the main thing the main thing." Duplicate capabilities at multiple sites will be consolidated or eliminated except where needed to effectively manage risk.
- Modernization and recapitalization of our infrastructure will be implemented through a "capability-based" approach. This approach provides an inherent capacity sufficient to meet future needs by the existence of each core capability to maintain the stockpile. In this context, our planning basis for the physical infrastructure anticipates smaller stockpiles, and improved nuclear weapons system safety and security.
- Efficiency and effectiveness of operations will be emphasized. Our contracting strategies, governance and business practices, and organizational relationships will evolve to achieve our objective of a smaller, safer, and less expensive enterprise. NNSA has initiatives underway to guide operational improvements.

Dismantlement and Disposition

Mr. Pastor and Mr. Frelinghuysen. Your fiscal year 2011 request includes a $38 million decrease for weapons dismantlement and disposition. This seems inconsistent with other actions the Administration has taken. We are trying to discourage nuclear proliferation, and it sends the wrong message to the world for us to be increasing our budget for making and operating weapons, while at the same time we're decreasing the budget for dismantling weapons. One explanation is that improved technology will enable us to spend less while maintaining the same dismantlement rate.

Mr. D'Agostino. In recent years, NNSA has exceeded its planned dismantlement rates due to investments in efficiencies and additional funding from Congress. Consequently, NNSA has some flexibility in adjusting resource commitments in the near term while we wait for the release of the NPR. NNSA remains committed to dismantle all currently retired weapons by 2022.

Mr. Pastor and Mr. Frelinghuysen. We have no way of publicly verifying this claim, since our dismantlement rate is classified. I can't understand why this is classified; dismantlement is a story we should be eager to tell the world. Will you get back to the Committee within 90 days with either a decision to declassify our dismantlement rates, or an explanation of why this should not be done?

Mr. D'Agostino. Both the National Nuclear Security Administration and the Department of Defense (DoD) consider dismantlement quantities as classified. Consequently, declassification can only occur through a joint determination on atomic weapons data consistent with the language of the Atomic Energy Act of 1954. We are working with our partners in the interagency and intelligence community to determine whether releasing dismantlement quantities could cause harm to our national security.

The nuclear weapon dismantlement program is a good news story that suffers from a lack of visibility due to classification. We have improved the efficiency and effectiveness of the program on a year-to-year basis. Periodically, we have provided qualitative measures of the program showing this improvement but recognize that public release of actual dismantlement numbers is the ultimate goal.

Mr. Pastor and Mr. Frelinghuysen. Can you assure the Committee right now that our planned fiscal year 2011dismantlement rate will be as great as, or greater than, the fiscal year 2010 rate?

Mr. D'Agostino. No. The dismantlement rate varies depending on the complexity of the weapon types scheduled for dismantlement. Some weapons require considerably more effort than others to dismantle. NNSA remains committed to dismantle all currently retired weapons by 2022.

B61-12 Nuclear Bomb

Mr. Pastor and Mr. Frelinghuysen. The B61-12 bomb is possibly our most controversial nuclear weapons issue. Last year you got $32 million for the Phase 2/2A study of the B61-12. Now you are still doing the same study, but you're asking for ten times as much: $317 million. What accounts for the difference? (Note: $15 million additional would be available if the Nuclear Posture Review endorses the B61-12, but the Review has not been completed.)

Mr. D'Agostino. NNSA is requesting $252 million in FY 2011 to complete the Phase 6.2/2A (Feasibility Study and Option Down-select/Design Definition and Cost Study) Life Extension Study. Last year's request of $65 million did not include the study of nuclear components. The amount requested in FY 2011, includes funding to complete development and assessment of nuclear refurbishment options and to mature critical B61 technologies required to meet a 2017 first production unit requirement. The $317 million request also includes $65 million required to maintain the existing B61 bomb family, including yearly maintenance, surveillance, assessment and certification activities. NNSA received $59 million for these activities in the FY 2010 appropriations. The $6 million increase in FY 2011 request for the B61 enduring system (B61 Mods 3, 4, 7, 10, and 11) will support surveillance activities.

Mr. Pastor and Mr. Frelinghuysen. The F-35 dual-capable aircraft and the proposed B61-12 bomb have digital interfaces. All other NATO tactical dual-capable aircraft and bombs use analog interfaces. Are our NATO allies concerned that conversion to the digital F-35 would leave them with aircraft and weapons that are incompatible?

Mr. D'Agostino. No. In accordance with DoD requirements, NNSA is developing a bomb interface system that will ensure compatibility with existing analog aircraft and new digital aircraft such as the F-35 Joint Strike Fighter.

Mr. Pastor and Mr. Frelinghuysen. Is the prime driver behind the B61-12 schedule the insistence by our NATO allies on having the digital B61-12 available by 2017, because that is when the first digital F-35 will deploy to Europe -- if there is no schedule slippage?

Mr. D'Agostino. The F-35 is not the only driver for the 2017 First Production Unit (FPU) requirement. The Nuclear Weapons Council established the FPU date to assure no capability gaps in the B61 strategic and extended deterrence mission. Selected B61 non-nuclear components are reaching end of life and continue to age. Further, NNSA must manage the workload of the laboratories and plants to deconflict other development and production priorities such as the W76 and W78 Life Extension Programs. Any delay to the 2017 FPU increases risk to this critical nuclear mission and will unbalance the workload.

Specific questions regarding NATO allies concerns over the extended deterrence mission fall under the cognizance of the Office of the Secretary of Defense (OSD).

Mr. Pastor and Mr. Frelinghuysen. We understand there is a two-year slippage in the F-35 development schedule, and further slippages are possible. Does this mean we can prudently add two years to the development program for the B61-12? That is, delay the initial operating capability to 2019?

Mr. D'Agostino. No. The Department of Energy must pursue a date of 2017 for the First Production Unit (FPU) in order to meet our commitment to the Department of Defense to assure there are no gaps in the B61 strategic and extended deterrence mission. The B61 bomb was designed for a 20-year service life, and its non-nuclear components are nearing end of life. NNSA is working with the Air Force to mitigate known end-of-life concerns until production for the B61 life extension program begins in 2017.

Additionally, the Air Force stated that the F-35 Dual-Capable Aircraft (DCA) capability will continue forward on a 2017 FPU date independent from the F-35 Block update schedule.

Mr. Pastor and Mr. Frelinghuysen. If there are further schedule slippages in the F-35 program, would this mean we can prudently slow the B61-12 program by the same amount of time?

Mr. D'Agostino. No. The refurbishment of the B61 bomb can proceed independent of the F-35 block schedule if needed.

Mr. Pastor and Mr. Frelinghuysen. Based on the current schedule that does not include the schedule slippages, am I correct that 2017 is currently the nominal date by which the first digital F-35s will be deployed to Europe, but that the total withdrawal of analog F-15s and F-16s will not be completed until several years later? Does this mean that if the B61-12 were delayed by several years, and F-15s and F-16s were retained in Europe several years longer than currently planned, our NATO allies would not be denuded of nuclear-capable aircraft?

Mr. D'Agostino. Respectfully, questions on aircraft/airframe aging and deployment strategy fall under the cognizance of the Office of the Secretary of Defense (OSD).

Mr. Pastor and Mr. Frelinghuysen. I understand that Germany has a severe affordability problem, and therefore doesn't plan to acquire F-35s until 2025 or 2030, or possibly never. I also understand that some other NATO countries have no intention to acquire the digital F-35 at all. Does this mean that, for some NATO countries, replacing our existing analog B61s with digital B61-12s is not a route to continued nuclear weapon capability, but rather it spells the end of their nuclear weapon capability?

Mr. D'Agostino. No. Per Department of Defense requirements, NNSA is developing a bomb interface system that will ensure compatibility with existing System I (analog) aircraft and new System II (digital) aircraft such as the F-35 Joint Strike Fighter.

Specific questions on U.S. and NATO aircraft/airframe aging, deployment and acquisition strategies fall under the cognizance of the Office of the Secretary of Defense (OSD).

W76 Life Extension Program

Mr. Pastor and Mr. Frelinghuysen. The life extension program for the W76 appears to have some difficulties. Mr. Administrator, your fiscal year 2010 budget request did not include sufficient funds to meet the schedule agreed to with the Navy for the W76. As a result, the Committee directed NNSA to highlight and explain in its future budget requests any instance in which the request would not fully meet the needs of its Navy and Air Force customers. I do not find any such information in this year's budget request. Am I to take this to mean that this budget request is sufficient to stay on the weapons schedules agreed to with the Navy and Air Force? (Please submit the weapons schedules upon which this budget request was based.)

Mr. D'Agostino. This budget request meets the Department of the Navy's requirements for the W76-1. The NNSA works closely with the Navy to ensure the delivery schedule for the W76-1 aligns with the Navy's submarine deployment schedules.

Mr. Pastor and Mr. Frelinghuysen. Have there been any schedule slippages in the W76 Life Extension program?

Mr. D'Agostino. Yes. As with any technically advanced, new-start program, we encountered production issues both in FY 2009 and FY 2010 which challenged NNSA's ability to meet our commitments to the Department of the Navy. In cooperation with the Department of the Navy, the NNSA revised the delivery schedule in FY 2009. We are on schedule to meet our commitments in FY 2010.

Mr. Pastor and Mr. Frelinghuysen. Have problems with the W76 arming, fuzing, and firing systems been resolved?

Mr. D'Agostino. Yes. NNSA has indentified the issue, implemented a fix and tested the result satisfactorily.

Mr. Pastor and Mr. Frelinghuysen. What effect will the Nuclear Posture Review have on the total number of W76-1 conversions, the total size of the W76 force, and on the total cost of the program?

Mr. D'Agostino. The NNSA has worked closely with the Department of Defense on the Nuclear Posture Review (NPR). We expect changes to the requirements for the W76. Without specific details, the NNSA is unable to estimate the effect of the NPR on the W76-1 program. However, no changes are expected that will impact production requirements before FY 2017.

Mr. Pastor and Mr. Frelinghuysen. Media reports indicate that DOE has initiated a Price-Anderson Act review of W76 refurbishment and the role of Sandia Laboratory and Pantex Plant in this regard. What is NNSA's view of this matter?

Mr. D'Agostino. Media reports are incorrect. DOE has not initiated a Price-Anderson Act review of W76 refurbishment.

SLBM Stockpile Reduction

Mr. Pastor and Mr. Frelinghuysen. You have suggested in public statements that there may be a reduction in the W76 stockpile, consistent with President Obama's desire to reduce the role of nuclear weapons. The Committee has, in its fiscal year 2009 and fiscal year 2010 reports, criticized the W88 as being poorly suited to a 21st Century deterrent. So if you are going to reduce the SLBM stockpile, why not look first at the W88?

Mr. D'Agostino. The W88 has unique mission requirements – mission requirements the W76 or any other system can not satisfy. The Department of Defense (DoD) establishes military requirements for the nuclear weapons stockpile. The Nuclear Posture Review will update the roles and missions of each of the nuclear weapons in our stockpile. If any adjustments are made, the NNSA will work with our partners from DoD to ensure we have the right stockpile composition to satisfy our national security objectives.

W78 Weapons Life Extension and Improvements

Mr. Pastor and Mr. Frelinghuysen. I understand you are considering a large range of options for the W78 upgrade. At one extreme, you would just replace the failing or over-aged components, thus making the W78 as it was when it was new. At the other extreme, you would gut the aeroshell entirely, and put in a complete set of fully modern components to make a fully modernized warhead. Which way are you leaning at present?

Mr. D'Agostino. The NNSA has made no decision on the nature of the W78 life extension. In FY 2011, the NNSA and the Department of Defense will initiate a Phase 6.1 Concept Assessment Study. This study will carefully consider all options and will identify safety, security and use control requirements as well as military priorities.

Mr. Pastor and Mr. Frelinghuysen. Will you commit to keeping the Committee promptly informed of every step you take along the way?

Mr. D'Agostino. We will provide the Committee updates as we work with the Nuclear Weapons Council on the life extension for the W78.

Mr. Pastor and Mr. Frelinghuysen. Do you have sufficient capability at Y-12, Los Alamos, and Pantex to upgrade the W76, W78, and B61, and to maintain or increase our dismantlement rates, all at the same time?

Mr. D'Agostino. We are very mindful of the capacity of the production sites. The NNSA will continue to carefully manage the balance between life extension work and dismantlements. Following the release of the Nuclear Posture Review, we will revise all our production and planning schedules to support the required stockpile. Currently, NNSA believes it can meet both its dismantlement commitments and its life extension schedule.

W80 Funding Increase

Mr. Pastor and Mr. Frelinghuysen. General Harencak, as you know, there is a major controversy over whether the platforms that carry the W80 warhead are weapons we would actually use. In 2007, the Department of Defense decided to scrap the Advanced Cruise Missile because of reliability problems. Similar concerns have been raised about the remaining platforms that carry the W80. In fiscal year 2010, NNSA's request for W80 Stockpile Systems dropped from the previous year's $31 million down to $19 million, which led to speculation that this was a prelude to retiring the remaining platforms that carry the W80. Now your current request is back up to $34 million. Given the limitation of this weapon system and uncertainty regarding its future, why did you increase the request in fiscal year 2010?

Brigadier General Harencak. Previously, NNSA decreased funding for the W80 in anticipation of the Department of Defense retiring the system and to prioritize funding within the FY 2010 budget constraints. The FY 2011 Budget Request restores funding for surveillances and assessments to their required levels. As long as the DoD retains the W80 in the active stockpile, NNSA must support it appropriately.

Mr. Pastor and Mr. Frelinghuysen. If the weapon system is scrapped, how would this affect your request?

Brigadier General Harencak. If the weapon system was entirely eliminated from the stockpile, NNSA would no longer need to perform or fund surveillance and assessments for the system. NNSA would need funds to safely dismantle and disposition this system.

Plutonium Sustainment

Mr. Pastor and Mr. Frelinghuysen. You are asking for $48 million above current appropriations for Plutonium Sustainment. But Plutonium Sustainment implies a long-term capability, and that isn't necessarily what you're proposing. The Committee has in the past criticized this program's tangible product, the W88, as being unsuited to current and future threats. I won't belabor that point here, but the fact is you only plan to produce 10 more W88 pits, which will be completed in two years. I'm not convinced that you need to actually produce pits to maintain a plutonium sustainment capability. But if in fact you do, after two years you will have no more pits to produce. Won't you then have to either shut down plutonium sustainment, shift to a sustainment capability that doesn't produce pits, or shift to one that produces pits for warheads that meet modern requirements, which the W88 does not?

Mr. D'Agostino. While production of W88 pits was the initial goal, DOE determined that it needed to establish a program to ensure that the nation had a sustained capability to handle plutonium and to perform a number of plutonium functions in what has become the Nation's primary national security focused plutonium research, development and production facility. The Plutonium Facility (PF-4) at the Los Alamos National Laboratory provides more than the capability to produce pit types for nuclear weapons. The PF-4 also produces plutonium shapes for subcritical and dynamic material experiments and supports plutonium aging and equation of state studies, to perform work for the Office of Nuclear Energy on advanced ceramic nuclear fuels and (in partnership with the National Aeronautics and Space Administration) unique long-lived power sources for spacecraft assigned deep space missions. It is imperative that the plutonium infrastructure be sustained not only to meet current and projected needs for manufacturing pits for nuclear weapons, but to enable these other vital programs to proceed. When the nuclear weapons program was operating at a higher production rate, and was the dominant user of plutonium research and production facilities, there was sufficient funding to both maintain the infrastructure and to provide access on a non-interference basis to support these other activities. It is now necessary to seek increased plutonium sustainment funding to ensure that the basic facilities and capabilities remain available in the absence of any significant assigned pit manufacturing requirements and to avoid either interrupting the access by these other programs or driving them to seek capital and operating funds to establish new, suboptimized, nuclear facilities in which to conduct their own plutonium activities.

Mr. Pastor and Mr. Frelinghuysen. Since you'll have to make the shift in two years, why don't you get ahead of the problem and make the shift now?

Mr. D'Agostino. NNSA has already initiated an integrated Los Alamos/Lawrence Livermore National Laboratory team to begin development engineering in support of a second legacy pit type that meets modern requirements. However, the production of pits is only the most visible programmatic activity performed in the Los Alamos Plutonium Facility.

Mr. Pastor and Mr. Frelinghuysen. Please explain the relationship between plutonium sustainment and UPF and TA-55 construction and maintenance.

Mr. D'Agostino. Plutonium Sustainment does not have a direct relationship with the Uranium Processing Facility, but it does have a strong relationship with TA-55 construction and

maintenance. Several projects, including the Chemical and Metallurgy Research Replacement (CMRR) Facility and the Radioactive Liquid Waste Treatment Facility (RLWTF), will enable the programmatic activities in plutonium research, processing and production to be performed on an on-going basis. RLWTF is essential for all activities that generate liquid waste—which must be handled in an environmentally compliant and effective manner. The CMRR will provide additional vault storage capacity that would support all activities performed at the Plutonium Facility (PF-4) and would also house a range of analytical chemistry and materials characterization equipment, tools and processes necessary to qualify pits for use in nuclear weapons, to support the assessment of the stockpile, to address requirements for the work performed by the Office of Nuclear Energy, etc. There is a plutonium enterprise that needs to work in an effective, integrated and systematic way to be successful. We might have all the personnel and equipment needed in the Plutonium Facility to make pits, and shapes, and power sources, but if our output of radioactive liquid waste exceeded the handling capacity we could not operate at the capacity needed. Similarly if we were unable to provide the data necessary for quality assurance, conformance to specification, and product acceptance, items produced could not be put into weapons, reactors, or outer space.

Mr. Pastor and Mr. Frelinghuysen. Exactly what will the $48 million increase in plutonium sustainment buy?

Mr. D'Agostino. The $48M in Plutonium Sustainment will buy upgraded equipment that better supports the range of activities performed in the Los Alamos Plutonium Facility (PF-4). Some equipment that can be used to increase the rate of production of pits can be applied to the purification of metal or conversion of oxide in support of science experiments, or to improve the storage efficiency in the vaults at Los Alamos. PF-4 is over 30 years old, and safety, environmental, and security standards have become more stringent since it was designed and built. The increase in funding for Plutonium Sustainment will be used to replace aging equipment, especially those posing single point failures, to use energy and space more efficiently by replacing single function equipment with modern, multi-function equipment.

Weapon Surveillance

Mr. Pastor and Mr. Frelinghuysen. The Congressional Commission on the Strategic Posture of the United States, as well as the JASONs in a separate study, both released in 2009, found our weapon surveillance program to be inadequate. What specific new or improved capabilities will your Advanced Surveillance request create to satisfy these criticisms?

Mr. D'Agostino. The NNSA is investing in new capabilities to understand the effects of aging of materials – detonators, plastics, pads – inside our weapons. Technologies such as non-destructive laser gas sampling, X-ray computed tomography, and acoustic resonance spectroscopy offer us the ability to conduct surveillance of nuclear explosive packages externally. These technologies will provide more data, of higher fidelity, to aid our annual assessment.

Mr. Pastor and Mr. Frelinghuysen. How has the weapon surveillance program changed since 2007, when NNSA introduced a new testing approach?

Mr. D'Agostino. In 2007, NNSA modified the surveillance testing approach through the Surveillance Transformation Project. NNSA took action to reduce the number of system test activities across all weapon programs, while increasing the actual number of component tests that look for age-related degradations. The design agencies reviewed their component testing programs and increased requirements in that area. NNSA also experienced new requirements for non-destructive evaluations and modeling and simulation techniques and capabilities. In prior fiscal years, NNSA was able to identify some funding within the base program to support the increase in component testing and development of new surveillance diagnostic techniques and capabilities; however, the increased funding included in the FY 2011 request for surveillance activities will allow NNSA to make significant progress on the Surveillance Transformation Project.

In addition, NNSA reorganized the Surveillance Enterprise Structure to improve the alignment of the organizations responsible for the development of surveillance requirements all the way up to those responsible for programmatic and budgetary decisions. Emphasis has been placed on better integration and communication of requirements and prioritization of activities across weapon programs and all sites.

Mr. Pastor and Mr. Frelinghuysen. How much are you requesting for all fiscal year 2011 weapons surveillance activities?

Mr. D'Agostino. NNSA is requesting $239M dollars for Directed Stockpile Work (DSW) weapon surveillance activities in FY 2011. This funding represents $165M for funding in Stockpile Systems and $74M for funding in Stockpile Services (non-specific tail number). This funding level represents surveillance activities explicitly expressed as surveillance work scope in the DSW work breakdown structure.

There are additional DSW-funded activities that provide a base capability to surveillance work at the laboratories and plants. This base capability funding request is approximately $40M and is not included in the surveillance work scope activities funding level stated above.

The FY 2011 DSW weapons surveillance activities funding ($239M) represents an increase of 32% compared to the FY 2010 surveillance appropriated funding ($181M).

Readiness in Technical Base and Facilities

Mr. Pastor and Mr. Frelinghuysen. NNSA's increase in topline spending has been publicly explained as an effort to improve infrastructure. But I don't see that reflected in your request. Your total Readiness in Technical Base and Facilities request – this is the infrastructure budget – is basically static, and within that the Operation and Maintenance request actually declines slightly, from $1.54 billion to $1.45 billion. Why is this?

Mr. D'Agostino. The topline funding trend for Readiness in Technical Base and Facilities (RTBF) increases for construction to support the investment needed to address the continued aging of the NNSA complex. However, the slight decline in RTBF Operations and Maintenance from $1.54 billion to $1.45 billion between FY 2010 and FY 2011 is primarily due to the nonrecurring request in FY 2010 for direct support of management and operating contractor pension costs, and the transfer of PDCF OPCs to Defense Nuclear Nonproliferation. Decreases in the five-year trend for RTBF Operations and Maintenance are discussed below.

- The total NNSA infrastructure portfolio includes RTBF, the Facilities and Infrastructure Recapitalization Program, and Site Stewardship activities. In total, these programs are requested in fiscal year 2011 at approximately $2 billion, an increase of approximately $150 million from fiscal year 2010. This increase includes funding for major long-term construction projects needed to restore critical capabilities in plutonium and uranium.
- RTBF Operations and Maintenance will focus resources needed for the availability of mission critical and mission dependent facilities, prioritizing and funding selected projects and maintenance activities in a risk-based manner.
- Deferred maintenance of facilities that are being planned for replacement will be allowed to grow, such as the Kansas City Plant. Necessary risk reduction work will continue at facilities such as CMR at LANL and Building 9212 at Y12.
- RTBF will continue to support consolidating program activities, reducing program footprint, and replacing/refurbishing process equipment as needed to support priority program work.

Kansas City Plant

Mr. Pastor and Mr. Frelinghuysen. What is the status of Kansas City Responsive Infrastructure and Sourcing, that is, the plan to leave the present Kansas City Plant and move to an all-new plant a few miles away?

Mr. D'Agostino. All local, state, and federal approvals have been obtained and all litigation has been dismissed clearing the path for the developer to obtain private bond financing. The developer plans to have a bond financing commitment by April 30, 2010, with real estate closing and groundbreaking by June 1, 2010.

Mr. Pastor and Mr. Frelinghuysen. When will the new facility be operational?

Mr. D'Agostino. The new facility should be ready for initial occupancy in late 2012 and all operations will be fully transitioned by mid 2014. In the interim, other related KCRIMS activities including business process transformation and inventory build-aheads that allow continued stockpile support during the physical relocation will continue.

Mr. Pastor and Mr. Frelinghuysen. Have there been cost overruns or schedule delays?

Mr. D'Agostino. The schedule for the KCRIMS facility has slipped approximately two years from the initial planning at Critical Decision 1. This delay was primarily due to the significant downturn in the bond market and economic conditions. The project had to be re-bid and was successfully brought in under the Congressionally approved prospectus, and cost targets have been maintained.

Mr. Pastor and Mr. Frelinghuysen. The justification cited for the $30 million increase in the fiscal year 2011 budget is "a short-term increase to the Operations and Facilities budget" while NNSA transitions to the new facility. How long is the short term? For how many out-years will such short-term increases be needed beyond fiscal year 2011?

Mr. D'Agostino. This short-term increase is devoted to the direct costs associated with the KCRIMS project which is currently scheduled to be completed in fiscal year 2014. KCRIMS funding (actual relocation, equipment, and building support) needs are projected as follows based on a 3rd quarter FY 2010 construction start date ($ in Thousands):

KCRIMS Funding Requirements Summary

	FY11	FY12	FY13	FY14
KCRIMS Requirements	$85,712	$83,569	$16,352	$7,853

Mr. Pastor and Mr. Frelinghuysen. How has Kansas City addressed GAO's concern in its October 2009 study that the schedule of the move, which is critical to ensuring that it does not disrupt production, does not fully adhere to best practices GAO identified for schedule development or to related DOE scheduling guidance and, as a result, the production of components may be interrupted because of the transition to the new facility?

Mr. D'Agostino. The project team for the transition Integrated Project Plan has continued to refine and add maturity to the plan based on the recommendations of the GAO report. Approximately a year of refinement has occurred since the GAO assessment and the team believes the plan meets the majority of scheduling guidelines. The schedule will be baselined in the April/May timeline and the plan will be fully compliant with the guidelines at that time.

TA-55 Reinvestment Project

Mr. Pastor and Mr. Frelinghuysen. How does Phase II differ from Phase I?

Mr. D'Agostino. The TA-55 Reinvestment Project was originally a single project with twenty-one subprojects. In October 2007, the project was split into three line item projects. The project split was directed to improve project management and oversight.

- The TA-55 Reinvestment Project (TRP) Phase I construction began in 2008 and will end in 2011. TRP Phase I consists of two sub-projects that address the facility and infrastructure of the Los Alamos Plutonium Facility (PF-4).:
    - Replace cooling towers
    - Replace chiller equipment.
- TRP Phase II construction began in 2010 and will end in 2016. TRP Phase II has seven sub-projects:
    - Replace uninterruptable power supply
    - Refurbish four air dryers
    - Replace eight confinement doors
    - Replace 20 detactors
    - Replace two plutonium water storage tanks and cooling systems
    - Install and qualify seismic bracing on 210 gloveboxes
    - Replace two exhaust stacks.
- Phase III work will not be approved before FY 2013 and construction will not be started before FY 2015.

Comparison	Phase I	Phase II
TPC (M$)	21.5	75.4 – 99.9
Subprojects	2	7
Expected Completion	Nov 2010	TBD

High Explosive Pressing Facility (HEPF)

Mr. Pastor and Mr. Frelinghuysen. When will construction begin on this facility?

Mr. D'Agostino. A start date for construction has not been determined. The FY 2011 President's Budget requests $30M in FY 2011 and anticipates an additional $30M in FY 2012. As part of the fiscal year 2012 programming process, we are evaluating options to address prior year project appropriations used as an offset to the FY 2010 appropriation and additional costs due to the delay in funding.

Mr. Pastor and Mr. Frelinghuysen. What steps are being taken to maintain and operate the current facility in the interim?

Mr. D'Agostino. Pantex is planning to provide minimal infrastructure improvements to Buildings 12-63, 12-17 and 12-17B (all to be replaced by HEPF). These improvements are required to support continuity of high explosive pressing operations for 4-5 years until the new facility can be constructed and brought into full operation. Within existing resources, Pantex is taking steps to increase availability of the current facility, including:

- Revised Preventive Maintenance procedures to include additional areas of evaluation, more frequent inspections and tests as the equipment continues to age.
- Additional testing of critical parts susceptible to failure.
- Procurement of additional spare parts for critical items that can be stored at the location of the press to limit down time due to failures.

These steps cannot guarantee an indefinite life of the current facility. The longevity of much of the equipment, valves, pumps, and controllers cannot be determined and will be operated until replaced by the new facility.

Mr. Pastor and Mr. Frelinghuysen. What impact would a delay in construction of the new facility have on weapons programs?

Mr. D'Agostino. Delays in construction of the new facility prolong exposure of the weapons programs to the risk of loss of the only source of war reserve primaries. From April through August 2009, high explosive pressing capability was off line due to a series of facility failures, including support equipment falling through the deteriorated roof, loss of air conditioning, and operational issues with the thermal ovens. The likelihood of further unplanned outages significantly increase the risk that NNSA will not be able to produce enough weapon primaries to support surveillances, the W76 Life Extension Program (LEP), and other LEPs that may be approved in the future.

Uranium Processing Facility (UPF)

Mr. Pastor and Mr. Frelinghuysen. Please describe the Uranium Processing Facility (UPF) activities that will be funded in fiscal year 2011.

Mr. D'Agostino. Fiscal year 2011 funds will be used to advance design. The project has completed preliminary design and will continue design development at a projected rate of approximately 2-3% per month. In accordance with DOE policy, the project cannot request construction funding without an approved baseline. Once a baseline is approved for selected site preparation and long-lead procurement scope, some funds will be redirected to construction if the project is ready to start work on that scope in fiscal year 2011.

Mr. Pastor and Mr. Frelinghuysen. When will a project performance baseline be validated and construction approved?

Mr. D'Agostino. The project schedule is still being developed. As stated in the budget request document, NNSA is considering an acquisition strategy proposing three smaller, more manageable projects with a discrete performance baseline for each. This approach must be approved by the DOE. When each project is submitted for approval to start construction, the design will be 90-100% complete providing high confidence that the project team can execute the approved performance baseline. Full construction authorization is expected in FY 2012.

Mr. Pastor and Mr. Frelinghuysen. How will Y-12 award multiple CD-2 and CD-3 packages to produce smaller, more manageable projects?

Mr. D'Agostino. Y-12 is planning to award three separate packages for the project. The first package will be a smaller project for the site preparation, including construction of the power substation, other utilities, grading, and site excavation for the building base, and long lead procurement for equipment. The second package is for the facility structure and equipment. It is necessary to keep this large portion of the project together due to the integration required between the building structure, the support equipment, and the process equipment. The final package will be submitted for a second phase of equipment installation.

Mr. Pastor and Mr. Frelinghuysen. Will all activities at building 9212 be moved to UPF?

Mr. D'Agostino. All highly enriched uranium activities in 9212 will be replaced by capabilities in UPF. Certain activities that do not involve special nuclear material will continue to be performed in part of the current facility until Building 9212 is dispositioned. A small fraction of 9212 operations are non-nuclear and located in an external wing. This external wing can be separated from the rest of 9212 to support non-nuclear manufacturing. Following completion of the UPF, Building 9212 will be transferred into a disposition program for demolition.

Mr. Pastor and Mr. Frelinghuysen. What is planned for buildings 9215 and 9998 after UPF is in operation?

Mr. D'Agostino. All highly enriched uranium activities in 9215 and 9998 will be reconstituted in UPF. Disposition options for ongoing depleted uranium operations in 9215 and 9998 facilities are being evaluated.

Chemistry and Metallurgy Research Replacement (CMRR)

Mr. Pastor and Mr. Frelinghuysen. What is the status of the Radiological Laboratory/Utility/Office Building (RLOUB)?

Mr. D'Agostino. The construction of the facility was completed in September 2009.

Mr. Pastor and Mr. Frelinghuysen. Regarding RLOUB Equipment Installation (REI) – What is the status of this project?

Mr. D'Agostino. The Critical Decision 2/3 for the REI project was approved in July 2009. Construction is underway and on schedule, with construction subcontract awards planned for third quarter in 2010.

Mr. Pastor and Mr. Frelinghuysen. Regarding RLOUB Equipment Installation (REI) – What will the $59 million requested for fiscal year 2011 fund?

Mr. D'Agostino. The fiscal year 2011 funds requested for the REI will be used to continue the procurement and installation of programmatic equipment, in particular continuation of glove box fabrication, completion of electrical and mechanical build-out of laboratory rooms to support installation of equipment fit-out, and installation of security and telecommunication equipment.

Mr. Pastor and Mr. Frelinghuysen. What types of activities will be funded in fiscal year 2011 for the Nuclear Facility (NF)?

Mr. D'Agostino. The fiscal year 2011 funds requested for the Nuclear Facility will primarily be used to advance the final design. To enable completion of dedicated Nuclear Facility design, design engineering and analysis will continue for a select number of safety components by manufacturers. Because the Nuclear Facility requires such a large effort, the project team is exploring options of segmenting some of the work into smaller, more manageable, projects with their own performance baselines. These activities may include procurement/modification of site utilities, construction support infrastructure, and soil improvement work. No funding will be used for these purposes until a project performance baseline has been validated and the appropriate milestones in accordance with DOE Order 413.3A have been approved for these smaller projects. .

Mr. Pastor and Mr. Frelinghuysen. The fiscal year 2011 request for the NF is $166 million, but the project performance baseline has not been validated and the design is not yet complete. Why is NNSA requesting a $109 million increase from fiscal year 2010 to fiscal year 2011?

Mr. D'Agostino. Fiscal Year 2011 funds are necessary to continue nuclear facility design and its associated special facility equipment. The final design effort is very large and the increase in fiscal year 2011 funding is necessary to make substantial progress so that all design activities can be completed in the fiscal year 2013-2014 timeframe. As the Nuclear Facility design matures NNSA will implement the Deputy Secretary's March 4, 2010, memorandum on Project Management Principles by redirecting some of the design funds into infrastructure sub-projects supporting Nuclear Facility construction including the development of construction laydown areas, acquisition of the concrete batch plant, relocation of utilities and roadway realignment, site excavation, soil stabilization, and basemat construction. Performance baselines for these early infrastructure sub-projects will be based on mature designs and established according to DOE

Order 413.3A. The sub-projects started in fiscal year 2011 will create an effective execution path for completion of Nuclear Facility construction by 2020 and start of nuclear operations in 2022.

LANSCE-R

Mr. Pastor and Mr. Frelinghuysen. Why does NNSA request no funding for LANSCE refurbishment?

Mr. D'Agostino. LANSCE is a key tool in our stewardship program and operations continue to be funded by NNSA and DOE SC. NNSA funds approximately $70M annually in LANSCE operations supporting stockpile management. In addition, LANSCE is currently performing programmatic research of importance for the Office of Science (including the Lujan Center neutron scattering facility for Basic Energy Sciences and the Isotope Production Facility for Nuclear Physics) as well as materials research and testing relevant to Nuclear Energy.

The LANSCE (LANSCE-R) refurbishment project was one approach to maintain the LANSCE linear accelerator. Congress appropriated $19.3M in FY09 for Planning Engineering and Design (PED) and $20M in FY 2010 for PED. The Administration decided not to proceed with the original project pending further study of the broader Departmental requirements. We expect to complete this analysis in time for the FY12 budget formulation.

Mr. Pastor and Mr. Frelinghuysen. What activities, if any, does NNSA plan for fiscal year 2011 for the refurbishment?

Mr. D'Agostino. NNSA expects LANL to maintain the capabilities of LANSCE through an enhanced maintenance program, including those maintenance activities deferred while the LANSCE-R project was being initiated. NNSA has requested that LANL provide a plan regarding the full suite of maintenance issues that need to be addressed in order to sustain today's level of operations through the decade, including the funding profile and timeline to accomplish the required maintenance to ensure that LANSCE is available over this time period.

Tritium Capability

Mr. Pastor and Mr. Frelinghuysen. Do you have any plans to shut down the LANL tritium R&D facility and to consolidate tritium activities at one site?

Mr. D'Agostino. At this time, no actions have been taken to shutdown the LANL tritium research and development facility or to consolidate tritium activities at one site. Plans were developed in 2009 to consolidate tritium research and development activities at the Savannah River Site. Per the 2009 supplemental appropriations language, no actions have been taken to implement those plans. However, it is still the NNSA's intent to have an independent technical mission review and cost analysis and provide the review and cost analysis information to the Senate Appropriations Committee. A firm date and composition for an independent review committee has not yet been established. Prior to such a review, NNSA would inform the SAC of the committee members and specific content of the review.

DAHRT

Mr. Pastor and Mr. Frelinghuysen. Is the DARHT second axis fully repaired and back in operation?

Mr. D'Agostino. It was back in full operation at the beginning of FY 2010. NNSA completed an enhanced management project to correct design defects leading to reduced operating voltages in the induction cells of the DARHT second axis accelerator. The accelerator has been commissioned, and the four pulse capability with required spot size and luminosity had been demonstrated. In some of the earliest beam alignment experiments, an operational mode allowed the carbon beam stop to partially vaporize, depositing carbon on high-voltage insulators in the accelerator. The accelerator was disassembled, cleaned, reassembled and tested. Meanwhile, Los Alamos Laboratory took advantage of the accelerator downtime to reconfigure the firing point at DARHT.

Mr. Pastor and Mr. Frelinghuysen. Is it delivering quadruple rapid-fire images as advertised?

Mr. D'Agostino. A recent hydrodynamic experiment was performed successfully using both axes including four pulses from the second axis. The clarity of the radiographs and the time sequence of the images are of outstanding quality demonstrating that DARHT will be an unparalleled tool in assuring performance and safety of nuclear implosion systems.

Mr. Pastor and Mr. Frelinghuysen. Is there reason for concern about the probability of future malfunctions?

Mr. D'Agostino. There is substantial energy in the electron beam, and there is always the risk that a single steering or focusing magnet may not function, causing the beam to impact on an inner accelerator surface. Depending on the size of the beam spot, the beam could vaporize any object that it hits, including the beam pipe. To mitigate this, DARHT has been placed under the formalized conduct of operations (DOE Order) to assure that the machine is operated methodically in accordance with established procedures. The DARHT second axis represents a significant technical achievement.

Institutional General Plant Projects

Mr. Pastor and Mr. Frelinghuysen. The Institutional General Plant Projects line for Lawrence Livermore National Laboratory would more than double under this budget request, while that for Sandia is nearly eliminated.

- What needs to be funded at Livermore, and what will be cut or terminated at Sandia?
- What is the reason for this shift?

Mr. D'Agostino. Each site determines and prioritizes these Institutional General Plant Projects (IGPPs) as part of that site's overall plan for infrastructure support funded from their general and administrative accounts. As such the increase at Livermore reflects allocations within Livermore to execute the Livermore site plan, and the decrease at Sandia reflects allocations within Sandia to execute its plan. Details on specific IGPP activities at each of the NNSA sites can be found in each site's Ten-Year Site Plan that we post for public review on our web site.

Inertial Confinement Fusion Ignition and High Yield Campaign

Mr. Pastor and Mr. Frelinghuysen. A new line item, Support of Other Stockpile Programs, has been added to the budget. It seems the focus is on stockpile stewardship issues and on collaborating with the Science Campaign. What is the reason for this?

Mr. D'Agostino. This is not a new line item, it is the use of an existing Major Technical Effort (MTE). Historically, funds were requested for this line in the ICF program up through FY 2005, but were reduced to support the highest priority work in ignition. There is strong collaboration between Science Campaign and ICF aimed at providing crucial advancements in the certification and assessment of the stockpile. In the FY 2011 Budget cycle, the 10.2 Budget category is being re-employed to acknowledge and emphasize specific Weapons Program deliverables – utilizing outstanding new tools, including ignition, to help place Certification and Assessment on a firm scientific base.

Mr. Pastor and Mr. Frelinghuysen. You are asking for a $30 million increase for NIF Diagnostics, Cryogenics, and Experimental Support. Why?

Mr. D'Agostino. Of the $30 million increase, $25 million is proposed to start a national program to develop advanced diagnostics to support challenging NIF experimental requirements beyond the National Ignition Campaign. An effort such as this is an essential component of the program for any scientific user facility. This effort is being organized under a national diagnostics working group and will be open to all technically qualified participants on a peer-review basis. The most important component of this work is the development of radiation-hardened diagnostics that will be required to diagnose ignition in weapons physics applications as soon as ignition has been achieved. This is intended for research and development only. Final engineering and facilitization costs to field a demonstrated concept on NIF will be supported out of facility funds.

Mr. Pastor and Mr. Frelinghuysen. The budget states that funding is needed for installation and qualification of the tritium handling system and Personnel and Environmental Protection Systems. We had thought these systems would be in place before the first ignition experiment by the end of fiscal year 2010. Why will funding continue in fiscal year 2011?

Mr. D'Agostino. The budget narrative for this major technical effort reflects the FY 2010 work that includes the Tritium Processing System, Stack Monitoring System, Tritium Area Monitoring System, and contamination Control Systems as well as the required shielding, equipment, and operational practices to allow shots up to 20 MJ yield in support of initial ignition shots.

A modest amount of further work will be required to support high-yield shots on a routine basis including area-specific shielding; the automation of operations capabilities consistent with evolving radiation safety principles and requirements to minimize hazards to workers and the environment. This work will be conducted with funding requested in FY 2011 and FY 2012. As part of our safety methodology, NNSA assumes that there will be a program of constant improvement in safety at NIF.

Mr. Pastor and Mr. Frelinghuysen. What is the status of the 4-month shut down from December 2009 to April 2010, which Livermore is using to install critical equipment?

Mr. D'Agostino. During this period, the following critical equipment and systems are being installed on the NIF to enable the ignition campaign:

The cryogenic target positioning system (Cryo TarPos), which will allow the filling, layering, characterization and insertion of targets with tritium in support of ignition experiments.
Personnel and Environmental Protection Systems to provide for safe handling of tritium and to protect personnel from the radiation from targets that produce a nuclear yield.
Diagnostics in support of ignition experiments.
Special laser optical systems to mitigate glass damage and enable full energy laser system shots to support the ignition campaign and stockpile experiments.
These activities are on track for completion to enable the resumption of the ignition campaign.

Mr. Pastor and Mr. Frelinghuysen. What is the status of the High Average Power Laser program?

Mr. D'Agostino. The purpose of the High Average Power Laser program was to develop, in a self-consistent way, all the critical technologies needed for an inertial fusion energy reactor based on using a laser as the fusion driver. The program consisted of three parts: development of the krypton fluoride laser at the Naval Research Laboratory (NRL), development of the diode-pumped solid-state laser at LLNL, and a variety of small efforts in academia and industry to address issues as diverse as first wall survivability and mass production of fusion targets. When no funds were provided for the program in the 2009 Consolidated Appropriations Act, NNSA took steps to stop work on fusion energy and to close down operations of the facilities. Some funds were provided to NRL to conduct work related to NNSA's mission of ignition. No funds have been provided to the NRL group in 2010.

Mr. Pastor and Mr. Frelinghuysen. How do you decide on the balance of funding between the National Ignition Facility, Z, and Omega?

Mr. D'Agostino. The NNSA prioritizes the experimental work to be performed within the total budget request. Highest priority until the end of the National Ignition Campaign (NIC) at the end of FY 2012 is providing the required support for the NIC following the NIC execution plan. Remaining funds are allocated to Omega and Z experiments to fund a balanced and prioritized set of experiments on these facilities to meet NNSA mission requirements as defined in the Program Plans for the Science Campaigns and other parts of Defense Programs.

NNSA has initiated a new High Energy Density (HED) Planning Council that will coordinate all of the HED/ICF requirements across the weapons program and for all NNSA facilities.

Mr. Pastor and Mr. Frelinghuysen. What is the status of the national ICF/HED advisory committee and the scientific advisory committee for NIF?

Mr. D'Agostino. As for the national ICF/HED advisory committee, NNSA and the Office of Science signed a memorandum of agreement in 2008 to use the Fusion Energy Science Advisory Committee for issues related to high energy density physics. This mechanism was used for the study on "Advancing the Science of High Energy Density Laboratory Plasmas" completed in January 2009. There has been recent interest in establishing a separate committee for nuclear weapons science, including ICF. The initial steps to form such a committee are underway. Establishment of an advisory committee must be approved by the Secretary. In its recent report on

achieving ignition in NIF, JASON recommended forming an advisory committee reporting to the laboratory director. NNSA agreed with this recommendation. The scientific advisory committee for NIF has been put in place at LLNL, chaired by Dr. Alvin Trivelpiece. The first meeting occurred in early December 2009. NNSA is looking forward to the first report and had observers at the initial review.

Inertial Confinement Fusion Ignition and High Yield Campaign

Mr. Pastor and Mr. Frelinghuysen. A new line item, Support of Other Stockpile Programs, has been added to the budget. It seems the focus is on stockpile stewardship issues and on collaborating with the Science Campaign. What is the reason for this?

Mr. D'Agostino. This is not a new line item, it is the use of an existing Major Technical Effort (MTE). Historically, funds were requested for this line in the ICF program up through FY 2005, but were reduced to support the highest priority work in ignition. There is strong collaboration between Science Campaign and ICF aimed at providing crucial advancements in the certification and assessment of the stockpile. There is no request for this budget category in FY 2011, but the FYNSP plan is to commence re-employment of this budget category in the outyears to acknowledge and emphasize specific Weapons Program deliverables – utilizing outstanding new tools, including ignition, to help place Certification and Assessment on a firm scientific base.

Mr. Pastor and Mr. Frelinghuysen. You are asking for a $30 million increase for NIF Diagnostics, Cryogenics, and Experimental Support. Why?

Mr. D'Agostino. Of the $30 million increase, $25 million is proposed to start a national program to develop advanced diagnostics to support challenging NIF experimental requirements beyond the National Ignition Campaign. An effort such as this is an essential component of the program for any scientific user facility. This effort is being organized under a national diagnostics working group and will be open to all technically qualified participants on a peer-review basis. The most important component of this work is the development of radiation-hardened diagnostics that will be required to diagnose ignition in weapons physics applications as soon as ignition has been achieved. This is intended for research and development only. Final engineering and facilitization costs to field a demonstrated concept on NIF will be supported out of facility funds.

Mr. Pastor and Mr. Frelinghuysen. The budget states that funding is needed for installation and qualification of the tritium handling system and Personnel and Environmental Protection Systems. We had thought these systems would be in place before the first ignition experiment by the end of fiscal year 2010. Why will funding continue in fiscal year 2011?

Mr. D'Agostino. The budget narrative for this major technical effort reflects the FY 2010 work that includes the Tritium Processing System, Stack Monitoring System, Tritium Area Monitoring System, and contamination Control Systems as well as the required shielding, equipment, and operational practices to allow shots up to 20 MJ yield in support of initial ignition shots.

A modest amount of further work will be required to support high-yield shots on a routine basis including area-specific shielding; the automation of operations capabilities consistent with evolving radiation safety principles and requirements to minimize hazards to workers and the environment. This work will be conducted with funding requested in FY 2011 and FY 2012. As part of our safety methodology, NNSA assumes that there will be a program of constant improvement in safety at NIF.

Mr. Pastor and Mr. Frelinghuysen. What is the status of the 4-month shut down from December 2009 to April 2010, which Livermore is using to install critical equipment?

Mr. D'Agostino. During this period, the following critical equipment and systems are being installed on the NIF to enable the ignition campaign:

- The cryogenic target positioning system (Cryo TarPos), which will allow the filling, layering, characterization and insertion of targets with tritium in support of ignition experiments.
- Personnel and Environmental Protection Systems to provide for safe handling of tritium and to protect personnel from the radiation from targets that produce a nuclear yield.
- Diagnostics in support of ignition experiments.
- Special laser optical systems to mitigate glass damage and enable full energy laser system shots to support the ignition campaign and stockpile experiments.

These activities are on track for completion to enable the resumption of the ignition campaign.

Mr. Pastor and Mr. Frelinghuysen. What is the status of the High Average Power Laser program?

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Advanced Simulation and Computing Campaign (ASC)

Mr. Pastor and Mr. Frelinghuysen. The most critical problem you face in meeting your need for the next quantum jump in computing capability is that with current technology, each exascale computer would need its own nuclear power plant, which makes it clearly unaffordable. How are NNSA and DOE Office of Science dividing up the workload on this problem?

Mr. D'Agostino. DOE Office of Science, NNSA, and DoD are scoping the R&D effort required, and will coordinate our activities. NNSA ASC and the DOE Office of Science ASCR have collaborated for several years on research and development activities for advanced architectures. At this point, the Exascale initiative is in a joint strategic research planning phase, including strategies to address the power problem. The joint initiative is contingent on funding availability. Tactical solutions to the workload required for this problem are still pending. A straight scaling of the anticipated 20-petaflop Sequoia power requirement of over 9 MW would imply an exascale machine based on today's technology would require over 450 MW, and this is indeed deemed unaffordable to operate. The power goal for an exascale machine is around 20 MW total. To achieve this goal, significant reductions in memory, CPU, and I/O power requirements will have to be realized. The FY 2011 NNSA budget request does not include an exascale commitment, so no funding has been specifically targeted for exascale development. If exascale is included in the FY 2012 budget request, R&D funding will be requested.

Mr. Pastor and Mr. Frelinghuysen. How has NNSA addressed the fiscal year 2010 Senate Appropriations bill criticism that the Office of Science and NNSA had not done enough to integrate their cooperation and R&D on Advanced Simulation and Computing?

Mr. D'Agostino. NNSA is successfully strengthening its long-standing partnership with the Office of Science by creating additional vehicles for communication – both at the laboratory level and the federal program office level – in order to more effectively plan and execute long-term advanced systems plans. For example, in addition to the collaboration between OASCR and ASC that has existed for five years on the IBM BlueGene/P and BlueGene/Q research and development activities, the two offices have recently formed plenary and executive committees to coordinate the largest class of future platform R&D efforts. Thus communicating early and often on our intertwined plans to exascale.

NNSA will also continue to use the model employed for the current IBM BlueGene/P and BlueGene/Q research and development activity where the lead lab for OASCR in this activity has been Argonne and the lead lab for ASC has been Livermore. This research and development contract for about $35M was jointly and funding equally split between OASCR and ASC. The development of BlueGene/P was successfully completed within scope, on time and within the budget. It lead to the deployment of multiple systems worldwide including two 0.5PF/s systems for DOE: one at LLNL for ASC (called Dawn) and one at ANL for OASCR and their INCITE program. These systems are in production usage now and delivering results to their respective programs.

Both Argonne and the larger OASCR program elements and LLNL and the ASC Tri-Lab community have been collaborating with IBM on the BlueGene/P and Q designs. We do this by reviewing designs and engineering trade-offs. We also provided information to IBM on our unclassified applications and projected and actual usage of the systems, providing benchmarks and evaluating the designs by running our unclassified codes on hardware and software simulators.

Recently the BlueGene effort at IBM was awarded the 2009 National Medal of Science and Technology. At the same ceremony, LLNL Computational Scientist, Berni Alder, was awarded the National Medal of Science for inventing molecular dynamics simulation techniques. These techniques are a major portion of the BlueGene/L workload in service to the Stockpile Stewardship program.

Mr. Pastor and Mr. Frelinghuysen. The budget request mentions the creation of two institutes: the Institute for Advanced Architectures with Sandia and Oak Ridge, and the Argonne, Berkeley, Livermore Exascale (ABLE) Institute to capitalize on the expertise across the complex in advanced systems and computational sciences. What will these institutes do, and what funding, if any, is needed to run these institutes?

Mr. D'Agostino. The Institute for Advanced Architectures (IAA) was set up at the direction of Congress in FY 2008. The Argonne, Berkeley, Livermore Exascale (ABLE) is in the process of being set up. Both institutes are catalysts for the design and development of architectures and algorithms/applications that are scalable to exascale environments. The two institutes are intended to be complimentary with IAA focusing on hybrid architectures and ABLE on more conventional architectures. Both institutes focus R&D on key impediments to high-performance computing and partner with other agencies to leverage our R&D and broaden our impact. IAA spent $7M in FY 2010, about half of which came from NNSA through Sandia, and the remaining funding coming from other partners, including the Office of Science. FY 2011 funding should be about the same. The scope of ABLE work for FY 2011 has not been decided. Discussions are on-going. The institutes are expected to pursue a base Exascale technology evaluation effort in FY 2011 with multiple industry and academic researchers. In particular, we anticipate the institutes would explore innovative programming techniques for multi-scale codes on multi-core architectures that scale beyond 1M way parallelism. In addition, the institutes would evaluate next generation processor core architectures against the emerging applications that will drive an Exascale initiative.

Mr. Pastor and Mr. Frelinghuysen. How has the ASC program addressed concerns from the March 2009 Defense Science Board Report on Advanced Computing that found that at currently projected levels of funding, ASC will not meet its nuclear weapons milestones in a timely manner and perhaps not at all?

Mr. D'Agostino. At the time the Defense Science Board (DSB) conducted their study, the 2009 budget was set, and the FYNSP indicated that the 2010 request was going to be further reduced from the FY 2009 level. Since then, the department decided to keep the FY 2010 budget for science level with FY 2009, pending outcome from the Quadrennial Defense Review (QDR) and the Nuclear Posture Review (NPR). Moreover, the FY 2011 budget request addresses some of the gaps in Science, Technology and Engineering (ST&E) support. Thus, the declining funding projections that were looming at the time of the DSB review would be mitigated to some degree if Congress approves the FY 2011 budget request..

The "milestones" in the ASC Roadmap (2006) to which the DSB report refers are actually stretch goals along the pathway set forth in four focus areas necessary to meet national security simulation needs. The major ASC roadmap goals are key stockpile stewardship objectives and have been incorporated as pegposts into the Predictive Capability Framework (PCF) that integrates activities of the NNSA simulation, science and engineering campaigns. All of ASC's stretch goals and

milestones must be balanced with the various priorities within the program, and target dates for achieving these stretch goals may change depending on funding or as more information is learned about the problems. However, their question about how the ASC program intends to meet roadmap stretch goals in a timely fashion, such as achieving exascale computing by 2018 to support stockpile stewardship, remains a legitimate concern. To make the budgetary challenge of exascale computing more tractable, NNSA is actively engaged in a partnership with the DOE Office of Science to develop a strategy to achieve this goal.

Mr. Pastor and Mr. Frelinghuysen. The budget request mentions an annual increase in the percentage of simulation runs that use modern ASC-developed codes. Is NNSA's plan for 80% of problems to be run with modern codes? Is this an effort to better meet nuclear weapons milestones?

Mr. D'Agostino. The goal for FY 2011 is 90%. For FY 2009 we successfully achieved our goal that 80 percent of weapons simulation problems would be addressed with modern ASC codes. In FY 2013 support for legacy codes will end. The modern, validated ASC codes incorporate better physics, better numerical methods, and can be configured to run in 1, 2 or 3 dimensions. They will be available to address any stockpile issue and to better meet nuclear weapon milestones.

Mr. Pastor and Mr. Frelinghuysen. What is the status of investment in cost-effective, power-efficient storage systems for the ASC program?

Mr. D'Agostino. Following Congressional direction the ASC program directed LLNL to invest $5M in power-efficient storage technology. The funding was split evenly between the University of Utah and LLNL ($2.5M each). The University of Utah procurement has been concluded, and the university plans to leverage this arrangement to develop a long-term relationship with LLNL. Both the University of Utah and LLNL plan to develop computing capabilities based on Fusion IO, power-efficient memory technology. LLNL has concluded a $2.25M purchase for Fusion I/O memory.

High Pulse Rate Laser

Mr. Pastor and Mr. Frelinghuysen. This Committee has been strongly supportive of the Naval Research Laboratory krypton fluoride laser program in the past. Last year NNSA put about $5 million into the program, which is commendable but not enough to keep the program alive. Will you have your people put their heads together with the Committee staff to see what can be done about this?

Mr. D'Agostino. Because of the potential of fusion energy as a long-term energy source, the non-defense parts of the department have taken a renewed interest in energy produced by inertial confinement fusion. The department will ask the National Academy to conduct an assessment of inertial confinement fusion energy systems (IFE). The department is considering ways to maintain essential capabilities and expertise at the Naval Research Laboratory (NRL) as it proceeds with the National Academy study. In addition, the department is specifically evaluating the potential of the krypton fluoride laser as part of the suite of approaches to commercial inertial fusion energy as requested by the Congress in the FY 2010 budget appropriations act. When no funds were provided for the program in the 2009 Consolidated Appropriations Act, NNSA took steps to stop work on fusion energy and to close down operations of the facilities. A small amount of funding was provided to NRL to conduct work related to NNSA's mission of ignition.

R&D Certification and Safety

Mr. Pastor and Mr. Frelinghuysen. For R&D Certification and Safety within Stockpile Services, you are asking for a 25% increase to $209 million after several years of flat budgets. I'm not clear why the present program is inadequate. Exactly why do you need this sudden increase?

Mr. D'Agostino. With the request for upcoming life extension programs, technology maturation will be required on key system-specific technologies and designs. Stockpile services R&D certification and safety support the capabilities to do this work. The campaigns develop the base capabilities and Directed Stockpile Work R&D certification and safety apply these to weapon systems, prior to final incorporation in a Life Extension Program activity. The increase buys back activities in prior year requests-over-target at the design laboratories and the Nevada Test Site.

Mr. Pastor and Mr. Frelinghuysen. What will it buy us?

Mr. D'Agostino. Specifically, the funds would provide for multi-system technology maturation for air-delivered and re-entry system architectures and sensors as well as tube design and controllers for neutron generators. The out-year requirements for neutron generator deliveries to the enduring stockpile are substantial, and the additional resources would be applied to this activity. The funding increment would also allow for continued support for hydrotesting infrastructure that would need to be in place for future LEP program development testing. In addition, these resources would provide for validation of computer models based on radiochemical re-analysis, primary and secondary assessment, and other activities associated with the Annual Assessment. Other areas that would benefit from the increase are materials compatibility and characterization, nuclear safety research and development, archiving, weapons effects, and detonator and initiator development. Additionally, plutonium science and equation-of-state data from experiments at Nevada Test Site (NTS) are important for developing the Stockpile Stewardship Program Predictive Capability Framework. The additional funding would maintain planned activities at the Big Experimental Explosive Facility, Large-Bore Powder Gun and U1A at NTS, which informs our knowledge of plutonium behavior by allowing for data collection in relevant pressure regimes for application to baseline model development and analysis of quantified margins and uncertainties. Finally, the increase in funding will allow for weapon component development (technology maturation) in the area of safety, security and use control that would keep pace with, gas transfer systems, power supplies and control systems currently scheduled for future LEPs.

Advanced Certification

Mr. Pastor and Mr. Frelinghuysen. What is Advanced Certification within the Science Campaign?

Mr. D'Agostino. The advanced certification campaign takes the long-term view towards developing tools that support the current stockpile as well as a future stockpile that may encompass substantial new safety and surety features. Advanced Certification provides a strong focal point for key science, technology and engineering deliverables that enable future life extension certification activities, especially if re-use is an option. In particular, key elements of this subprogram in FY 2011 are: 1) certification methodologies, 2) the use of near-neighbors from the underground test database for certification, 3) assess the role of manufacturing processes and material changes, 4) advance the understanding of surety and its impact on certification, 5) explore failure modes, and 6) technological risk mitigation.

Mr. Pastor and Mr. Frelinghuysen. Why are you asking for a 300% increase to $77 million?

Mr. D'Agostino. Recent external studies have pointed out the need for scientific efforts that help resolve issues fundamental to modern primary performance. The requested increase funds hydrodynamic experiments at the Dual-Axis Radiographic Hydrodynamic Test (DARHT) facility and the Nevada Test Site (NTS), including experiments to examine options for modernized surety. Also supported is the analysis of failure modes and margin-to-failure, including stockpile, non-stockpile, and potential proliferant designs. The goal is to reduce uncertainty by understanding failure modes and margin-to-failure in a more robust manner such that future tools predict both device performance and failure. Data on specific materials will be obtained using the tools developed through the other science sub-campaigns in order to reduce remaining uncertainties, including data that improves the basis for confidence in materials choices impacting the future stockpile. This effort also supports Intelligence Community issues and involves close coordination with other government agencies in national security. Failure mode analysis is fundamental to stewardship and the extension to other designs will contribute to counterterrorism and counter-proliferation assessments. These efforts are providing an effective means to challenge and extend the domain of validity of our physics-based simulations.

Detailed budget breakdown of $57.6M increase in advanced certification. Please define each of the six areas under advanced certification and what the fiscal year 2011 funding supports.

QMU [Quantification of Margins and Uncertainties] Methodology $6M
The QMU Methodology develops a strategy for certification and assessment of systems and components based on Quantification of Margins and Uncertainties, involving increased peer review and rigorous coupling of science and technology advances to define long term research needs for Advanced Certification. This Major Technical Effort (MTE) is providing an assessment of the state of the enabling tools, and in the long term, will define and refine requirements for lifecycle certifiability.

In FY 2011, efforts will include the development of metrics and QMU methodologies beyond the standard "cliff chart." This includes sensitivity studies and materials data to reduce key uncertainties, especially related to the boost process, life cycle certifiability (aging) and new safety/surety materials. Peer review will also be a key element of these efforts.

Near Neighbor Definition $8M
The focus of the Near Neighbor Definition effort is to understand the role of archival data from underground tests in the certification process. In particular this effort seeks to define metrics for comparison of tests and ensure that the long term use of Underground Test (UGT) data is rigorously evaluated. As more physics based models are implemented, data from additional historic UGTs will be able to be drawn into the certification process as "near neighbors."

In FY 2011, we will refine metrics and improve physics models so that more underground tests can be included in assessments or certification. To more firmly establish the basis for the use of near-neighbors, carefully-designed surrogate or subcritical experiments can be used to validate calculations and reduce uncertainties. Again, this MTE has a major focus on primary implosions and will include the planning for experiments at DARHT and NTS.

Manufacturing and Engineering Process Solutions $10M
Conduct manufacturing and engineering process assessments and develop a rigorous connection between performance effects resulting from material, component or manufacturing changes. Certification solutions for variations in pit manufacturing techniques (including reuse). Develop options for alternate materials and processes to minimize the cost or use of expensive or hazardous materials. Analyze experimental data provided by the other stockpile stewardship activities to derive performance effects and uncertainties. Assess, as appropriate, the effect of changes of limited life components to maintain or improve yield margin.

In FY 2011, we will start to define DARHT or NTS experiments to understand the likely consequence of these manufacturing or process changes to performance.

Advanced Surety Solutions $12M
This MTE is dedicated to the physical understanding and developing certification methodologies for new surety techniques and mechanisms. This MTE will leverage the results from the related campaigns to validate these techniques and mechanisms.
In FY 2011, we will expand on the surety-science capabilities that are required to support certification, including modeling, materials properties and experimentation. The experimental program will expand on the related proof-of-principle experiments being conducted in FY 2010, and will include the use of DARHT, NTS and other facilities to conduct key experiments to ensure that we can certify or assess options for modernized surety.

Failure Modes $11.6M
This MTE is developing a comprehensive catalog of failure modes, thresholds and metrics. This includes the modeling of primary and secondary failure modes and engineering failures. This MTE also determines effects on certification of new or modified components and subsystems under Stockpile-to-Target conditions such as extremes in temperature or radiation exposure. To accomplish this, the MTE will design experiments to test failure modes.

In FY 2011, we will define a number of key failure modes and start the development of experiments at DARHT, NTS and other facilities, including the Los Alamos Neutron Science Center (LANSCE), to validate code predictions. One of the features of advanced certification is to provide experimental validation that our codes can predict the nature and location of failures. We have an extensive program to validate our codes for nominal performance but, as we demand longer-lived systems, we must be sure of where failures occur. The goal is to reduce uncertainty by understanding failure modes and margin-to-failure in a more robust manner such that future tools predict both device performance and failure.

Technological Risk Mitigation $10M
This new MTE is used to challenge and extend the domain of validity of our physics-based simulations. These efforts would support future stockpile stewardship needs as well as the needs of the broader national security community. This would include anticipating stockpile challenges beyond our current range of validation, as well as have relevance to "threat reduction science." This new MTE would also expand on the ideas in MTE 2 and 4 by conducting experiments that support foreign assessments to test the range of predictability of our modern codes to non-stockpile systems. This will ensure that the best models are available to support intelligence-driven assessments while exploring the range of validity of our physics models. Non-stockpile systems will stress models in different regions than our stockpile would. If the models can predict experimental results for non-stockpile systems then it increases confidence in our predictive capability. To accomplish these goals, experiments at NTS, DARHT or other facilities would be planned.

Mr. Pastor and Mr. Frelinghuysen. Is this to support future life extension programs, pit re-use, or new warhead designs?

Mr. D'Agostino. This campaign provides a sound science-based capability underpinning a broad spectrum of future life extension options. These include improved warhead safety and surety, changes made under life extension programs, as well as changes such as component reuse. However, apart from some definite surety technologies, the capabilities provided under Advanced Certification are generally not tied to specific future choices, but rather support the knowledge-base required for a range of future options. In particular, Advanced Certification ensures tools are available to certify or assess the spectrum of options.

Dual Validation

Mr. Pastor and Mr. Frelinghuysen. The fiscal year 2010 National Defense Authorization Act called for a dual validation process to improve the annual weapons assessment. According to NNSA officials, dual validation would cost between $1-2 million annually. I see nothing for this activity in your budget justifications. Are you requesting fiscal year 2011 funding for dual validation?

Mr. D'Agostino. The $1-2 M figure referred to is essentially the approximate level of funding that would be required per lab/weapon system/year. For FY2011, $10M is needed to support dual validation work associated with baselining two weapon systems. For FY2011 this effort will be funded within existing program lines. Defense Programs will identify outyear funding for this activity in its FY2012 programming process. The $10M funding level for FY 2011 does not reflect the additional costs associated with experiments and rebaselining efforts resulting from improvements made to codes and physics models development. Those additional costs will be integrated with the funding requests and the funding increases now projected in the outyears, which as amended were published in the FY 2011 Budget, that are associated with the appropriate Campaigns and Directed Stockpile Work Research and Development activities.

Livermore Equipment Failure

Mr. Pastor and Mr. Frelinghuysen. Two years ago, a protective force exercise at Livermore was a disaster. One of the causes of this was the total failure of the elevation platform for the Dillon machine gun. But it is disturbing to learn that the fatal design defects in these platforms had been known for years. In fact, the defects were known to the Livermore protective force at the time the platforms were purchased. Why was this allowed to happen?

Mr. D'Agostino. Deficiencies with the Mobile Weapons Platform (MWP) were primarily with the electrical and hydraulic systems. Laboratory officials were not comfortable in fielding the more overt "LENCO Bearcat" armored vehicle, so the MWP was conceived as a prototype so as not to present a threatening signature, and to mask the vehicles' capabilities. Issues with the electrical and hydraulic systems began to occur after fielding them. Based on document reviews and interviews with protective force personnel, the failure of the MWPs to rapidly engage in combat operations was affected by Rules of Engagement based on Nuclear Operations Authorization Basis rules. Lawrence Livermore National Laboratory had limitations on when and how the MWPs could be function-tested on-shift and ultimately deployed to support the site protection strategy. Limited Scope Performance Tests (LSPT) were conducted that validated the ability of the protective force to deploy the weapon system; however, LSPTs to test the platform itself – a critical system element – were not adequately performed or captured. In short, an authorized but issue-plagued augmentation to the security posture was delivered due to a lack of predetermined rigid performance requirements.

Mr. Pastor and Mr. Frelinghuysen. Was NNSA aware of it?

Mr. D'Agostino. NNSA HQ Protective Force Program Management officials became aware of the MWP issues during the DOE Office of Independent Oversight inspection in April of 2008.

Mr. Pastor and Mr. Frelinghuysen. What have you done, and what can be done, to prevent such defective practices in the future? That is, what procedures have you implemented to ensure that right now as we speak we are not purchasing known defective equipment?

Mr. D'Agostino. Ultimately, the Security Organization at LLNL embarked on an aggressive plan to essentially rebuild the MWPs using on-site fabrication professionals. Although costly, the end result was a product that proved to be extremely functional and exceeded newly developed, comprehensive written performance requirements. In the time since the discovery of and rebound from this issue, DNS has implemented a "Security Commodity Team (SCT)," whose charter is to ensure the NSE conforms to certain standards for all types of security-related equipment. If no standard currently exists for a particular piece of equipment, the SCT will assemble a team of security professionals to determine what criteria the proposed security element must meet. As for armored vehicles such as the MWP, the NNSA has chosen to standardize deployment around the LENCO Bearcat in the out-years. LENCO is an industry leader in this field and is quite familiar with DOE/NNSA requirements. The SCT is comprised of protective force security professionals from all NNSA sites who are acutely aware that future procurement of certain types of security equipment not already approved by the SCT is forbidden.

Cost Estimating

Mr. Pastor and Mr. Frelinghuysen. Which of your construction projects have gone through or are approaching Critical Decision (CD) 3 or 4 without having had an Independent Cost Estimate at CDs 1, 2, or 3?

Mr. D'Agostino. The Department recognizes that cost estimating is a weakness in our project management capabilities and has been identified as such in both internal and external reviews, for example, the recent GAO study on this subject. As such, we are working with the Office of Engineering and Construction Management and the Office of Cost Analysis to issue a new DOE Order on Cost Estimating that will formalize and improve our cost estimating processes. In the meantime I have issued an internal policy for NNSA establishing when independent cost estimates will be obtained for NNSA projects.

Specific to your question, the following projects are active, have attained CD-3 or are approaching it, and have not had an Independent Cost Estimate performed. As part of the existing project management process, all of these projects have undergone less rigorous independent cost reviews. Independent Cost Review Performed:

Chemistry & Metallurgy Research Replacement Facility (not NF)
Nuclear Materials Safeguard and Security Upgrades Ph II
Waste Management Risk Mitigation
Gas Main & Distribution System Upgrade
High Pressure Fire Loop
Zheleznogorsk Plutonium Production Elimination Project
TA-1 Heating System Modernization
Test Capabilities Revitalization Ph II
Beryllium Capability Project
Criticality Experiments Facility
Mixed Oxide Fuel Fabrication Facility
Waste Solidification Building
Security Improvement Project
TA-55 Reinvestment Project Ph I
Ion Beam Laboratory

Cost Estimating

Mr. Pastor and Mr. Frelinghuysen. A recent GAO study cited Savannah River and Y-12 as having cost estimates that "lacked credibility." It found that DOE in general for more than a decade has not had a sound policy on how cost estimates are to be prepared. For example, some cost estimation guides assign responsibilities to offices that no longer exist, and are based on policies that have been canceled. Is this the case with any NNSA programs?

Mr. D'Agostino. NNSA is committed to provide accurate and defensible cost estimates to support funding requests. We recognized the lack of specific guidance regarding Cost Estimating and as a result, NNSA issued a Business Operating Policy (BOP) 50.005, Establishment of an Independent Cost Estimate, which defines field requirements for cost estimates, who will perform and review them, and documentation required for each type of cost estimate based on the maturity of the project. This BOP was approved in February 2009. To further support this policy NNSA issued a companion Cost Estimating Guide 50.005 to delineate in detail what is required for each type of cost estimate based on the maturity of the project. This Guide was issued in January 2010 and includes the best practices of the GAO cost estimating guide.

Hearing Date/Question Number: March 4, 2010/Question 58

Project Management

Mr. Pastor and Mr. Frelinghuysen. Administrator D'Agostino, NNSA has been heavily criticized by this Subcommittee and others for its poor project management, frequently resulting in significant cost overruns and schedule delays. You're asking for a significant increase in your budget, much of which would be going to large construction projects. What are you doing differently that would give us any more confidence that this funding would be spent efficiently and effectively?

Mr. D'Agostino. I have made improving project management an area of special emphasis in NNSA since May of 2007 and we have made important strides to improve in this area. We have also been supporting the Department's larger efforts to address the GAO's concerns about the Department's contract and project management.

Part of this improved performance can be attributed to increased senior management attention; the Deputy Secretary conducts Quarterly Performance Reviews for the Department's largest projects; I am briefed monthly on any NNSA project(s) deemed likely to exceed its cost or schedule baseline. At both of these, we require the projects to report what specific actions are being taken to return them to acceptable performance. We now have in place formal policies in the following areas directly related to project management: Risk Management, Value Management, project reviews, cost estimating, and documentation of program requirements.

Efforts to increase the qualifications of our project management personnel are showing positive results; more of our federal project directors are being properly trained and certified each year (we expect to meet our 2010 target of 80%) and all of our line item construction projects are being managed by contractors with earned value management systems certified to the American National Standards Institute criteria. In addition, over the years we've had roughly 150 NNSA federal project directors attain the Project Management Institute's Project Management Professional

(PMP) certification. This is an important credential recognized in the broader project management community.

Looking forward, we expect to see the positive impact of other initiatives. In January, I approved a new cost estimating guide to provide uniform guidance and best practices for preparing cost estimates on NNSA projects, an issue that the GAO recently pointed out that we need to address. We're implementing recently-issued Departmental guidance on design maturity, project staffing, project funding, peer reviews, and cost estimating. In addition, we have also started conducting project Technical Readiness Assessments--much like those conducted by DoD—to ensure that we're ready to commit to a baseline.

I believe these improvements will help ensure we spend project funds efficiently and effectively.

Oversight Models

Mr. Pastor and Mr. Frelinghuysen. I understand that you are planning to apply the Kansas City oversight model to the other non-nuclear sites. Please describe what the advantages of the Kansas City model are that make you want to apply them elsewhere.

Mr. D'Agostino. The National Nuclear Security Administration (NNSA) continues to transition to "performance based contracting" (PBC) at our contractor sites, sometimes referred to as the Kansas City Plant (KCP) model.

The advantages of this new model are that the contractor's parent organization plays a much more active role in the management of the contract, while the federal offices define the deliverables via a revised contract performance evaluation plan. Federal oversight is increasingly risk based while the contractor's accountability for delivering mission results in the most cost effective and efficient manner is increased. With this model, NNSA was able to reduce the cost of both federal and contractor operations at KCP, thereby redirecting scarce resources to further programmatic mission.

Our effort to accelerate the improvement of PBC started in Fiscal Year 2006 at our Kansas City Site Office and Plant. This new PBC model redefined the government/contractor relationship by moving away from the traditional style of contractor management, whereby the government develops overly prescriptive guidance to be incorporated into a contract and then the federal staff performs detailed transactional oversight against the federal guidance. The new PBC model allowed KCP to use industrial standards, where appropriate and transferred responsibility for the design and implementation of standard operational administrative and support processes from NNSA to the contractor. NNSA moved more towards determining the "what" and the contractor was allowed to determine the "how." NNSA increased its utilization of the Contractor Assurance System, third party and/or peer reviews and for-cause type reviews.

Currently, NNSA has authorized the Sandia Site Office and Sandia National Laboratory and the Nevada Site Office and National Security Technologies, to take steps toward implementing similar performance based principles at their respective sites for non-nuclear operations. We are similarly implementing the PBC model in product-based project management of NNSA construction.

Mr. Pastor and Mr. Frelinghuysen. Why not apply them to the nuclear sites as well?

Mr. D'Agostino. The reason for not applying this model to our nuclear facilities has to do with the availability of a suitable regulatory scheme that relies upon consensus standards, as well as the maturity of our regulatory processes for our nuclear facilities. Application of a true PBC model depends upon the availability of suitable consensus standards and oversight methodologies that are appropriate for our facilities and have demonstrated effectiveness. The risk of transitioning to this alternative regulatory approach for non-nuclear facilities is small because of the demonstrated effectiveness of non-nuclear consensus standards in facilities that parallel our non-nuclear operations.

We will be applying the Kansas City PBC model to our sites that have nuclear facilities, but the model is being applied to the oversight of our non-nuclear operations at those sites, not to our nuclear operations. Nuclear sites will receive the benefits of the Kansas City model for the non-nuclear facilities at those sites, improving activities conducted in non-nuclear facilities.

The situation is a little more complicated for our nuclear facilities. When we discuss the requirements that are specific to nuclear facilities, most are associated with the safety of those facilities. Some of our nuclear facilities have strong parallels in private industry and have already implemented consensus standards. For example, the Department decided that the Mixed Oxide Facility currently under construction was appropriate for regulation by the Nuclear Regulatory Commission (NRC) and is applying NRC standards there. Most Department of Energy (DOE) nuclear facility requirements documents include a provision that states that they do not apply to operations that are subject to NRC regulation (e.g., DOE Manual 441.1-1, Nuclear Material Packaging Manual, page ii). Thus, once the decision is made to apply NRC regulation, the NRC requirements supplant the appropriate Departmental requirements related to nuclear safety.

In other types of facilities, there are incomplete parallels with commercial industry, but where suitable standards exist the Department has adopted them either directly or in a modified form to account for peculiarities of our work. The demonstrated willingness to apply consensus standards when and where they are suitable for our nuclear facilities will continue as we revise our nuclear facility requirements.

However, many of our nuclear activities are unique and/or have no significant parallel in the commercial industry (e.g. the facilities for assembly and disassembly of nuclear weapons). The hazards and controls needed to ensure safe nuclear explosive operations have no parallels in industry, and Department-specific procedures have been developed to capture the enterprise's 50+ years of experience with nuclear explosives to ensure safe operations. Although not as dramatic, significant differences between commercial facilities and the mission, history, and characteristics of our other non-NRC-regulated nuclear facilities make it inadvisable to shift to an oversight model similar to that of the KCP, although the Department remains committed to improving and streamlining our oversight processes wherever there is an opportunity to do so.

Open Campus

Mr. Pastor and Mr. Frelinghuysen. NNSA has established an "Open Campus" with Lawrence Livermore National Laboratory and Sandia National Laboratory in order to facilitate access by visiting scientists not involved in classified work. I can understand how, as the national labs seek to expand their revenue base, such an approach could be attractive. But how do you ensure that these scientists, who may not have the proper clearances, are truly kept separate from classified experiments and information?

Mr. D'Agostino. The NNSA and the Office of Science in DOE have approved a mission need for an open campus. The project plan is in development. Scientists without security clearances, many of whom are foreign nationals, comprise a signification portion of the current workforce at the national labs. There have long been well-established physical, electronic, and operational measures assuring that classified material is not compromised in this environment with cleared and uncleared workers. The open campus would rely on the same protections. All work executed within the open campus will be unclassified. If in the event of conducting research, there should be a need to have a classified discussion, then all current LLNL/SNL security protocols will be followed and all discussions will occur inside the fence with the appropriate clearance levels, badging, access, meeting locations, etc., strictly followed.

Mr. Pastor and Mr. Frelinghuysen. Is there a way to use this set-up to increase the opportunities for our scientists who have been working on classified experiments to build their academic credentials by publishing and building upon unclassified portions of their work?

Mr. D'Agostino. Yes. Many of our scientists who work on classified topics are already able to openly publish in prestigious journals. The open campus will further increase the opportunities within the academic world for national security scientists to work on unclassified publishable research. This is an important goal because in addition to providing challenging work and offering a natural recruitment pipeline, the open campus will help to keep national security scientists sharp, and visible in the international community, through these academic collaborations.

Nuclear Counterterrorism Incident Response Program

Mr. Pastor and Mr. Frelinghuysen. The Nuclear Counterterrorism Incident Response program would receive a five percent increase, concentrated in the Nuclear Counterterrorism Homeland Security subprogram. Your budget justification states that this funding represents a revised investment mix in a variety of areas.

- What is this new mix, and why is it necessary? Please provide specific items to receive the proposed funding increase.
- If the increase results from a reallocation from other program lines, please provide a comparison of the fiscal year 2011 request compared to fiscal years 2009 and 2010.
- Is the program at risk of not meeting the Department of Defense's requirements? If so, why?

Mr. D'Agostino. The Nuclear Counterterrorism Incident Response (NCTIR) FY 2011 budget request reflects a revised investment mix that includes ongoing capability-enhancing projects within the Nuclear Counterterrorism program element. These projects will directly benefit other components of NA-40, particularly emergency response and nuclear forensics. Specifically, the increased funding will support the Joint DoD, DOE and FBI Disablement Capabilities Review and, in turn, will guide out-year tool development for first responders; procurement of improved equipment for the national and international render-safe programs; and key research in nuclear forensics.

The increase is not a reallocation, but results from the Administration's allocating additional national security budget "target" to NNSA during the FY 2011-2015 budget process, as reflected in the President's Budget Request. The program is not at risk for failing to meet any Department of Defense requirements.

Work for Others and Laboratory Capabilities

Mr. Pastor and Mr. Frelinghuysen. The NNSA weapons labs not only serve the programs of the NNSA, they serve a variety of other agencies in the United States Government. This work, known as Work for Others (WFO), makes available the unique capabilities of national laboratories to a host of national security missions. The downside of this work can be that capabilities at the weapons laboratories are in high demand and possibly over-subscribed. Which broad capability areas are in highest demand for WFO?

Mr. D'Agostino. The broad capabilities that are in highest demand for WFO include Materials (such as energetic and non-energetic material design, synthesis, testing, and characterization from the nano- to the macro-scale), Information Science & Technology (such as the modeling, simulation, visualization, and integration of large data sets to maintain exquisite situational awareness, perform intelligence assessments, and make science-based predictions of complex systems), and the 'Science of Signatures' (e.g., nuclear forensics, integrated systems for remote modeling, detection of nuclear and radiological material, and the prevention of technological surprise). These broad areas represent capabilities NNSA draws upon for its mission while also being unique-to-NNSA capabilities that are offered to other agencies to address their vital national security challenges.

Mr. Pastor and Mr. Frelinghuysen. While operating costs are derived from overhead charges to these other customers, an ongoing concern is the investment in maintaining and, if necessary, expanding infrastructure. Do you consider the current fee structure and other arrangements sufficient to meet these investment needs?

Mr. D'Agostino. The current structure of overhead charges allows other agencies to contribute to the ongoing operations of our national laboratories, including some physical infrastructure within the discretionary spending limits at each site. However, this model does not include providing for long-term investment in capabilities needed at the national laboratories. To address this issue, I am working directly with other national security agencies, and supporting the Secretary in interactions with his peers, to create effective governance systems that will facilitate discussions on long-term needs and develop strategies to meet those needs.

Mr. Pastor and Mr. Frelinghuysen. What are your ideas on alternative arrangements to ensure a fair and equitable share of maintaining and expanding the capabilities of the weapons laboratories?

Mr. D'Agostino. Alternative arrangements will be most fair when they are developed in collaboration with the agencies that own the national security missions along with the NNSA. The Energy Policy Act of 2005 requires us to look at various venues and agreements to maintain and expand on the labs capabilities as national assets for use by other agencies and industry. The interagency forum being developed will provide for a discussion of strategies for lab utilization that would be considered fair by all parties. In addition, our labs' collaboration with industry must be strengthened to promote and expedite technology commercialization for economic recovery and global leadership in science and technology. Legislative endorsements to these arrangements, such as other transactional authority, are critical to ensure successful execution.

Additional Questions for the Record from Congressman Edwards

MITIGATING PROLIFERATION RISK AND EXPANDING NUCLEAR ENERGY

Rep. Edwards. Mr. Administrator, as the Nation and world begin to deploy new nuclear power reactors in response to global energy needs and climate change concerns, the issue of nuclear proliferation will undoubtedly be raised as an issue to be considered in framing a sustainable nuclear future. How is the NNSA working with DOE's Office of Nuclear Energy to re-establish U.S. global leadership in assessment and mitigation of proliferation risk? What initiatives can be taken in both technology and policy dimensions to prepare for the future expansion of nuclear technology?

Mr. D'Agostino. NNSA is working with DOE/NE to evaluate new technologies and fuel cycles for both their safeguardability and the potential for proliferation. In the broad scope of international nuclear proliferation, the technology utilized is only one of many factors that must be considered when making a decision to authorize or locate a new nuclear fuel cycle facility. There is no Enrichment and Reprocessing (ENR) "silver bullet" that would make it possible to site, without increasing proliferation risk, a new ENR facility in a country not currently possessing the technology. For this reason, NNSA continues to work with the DOE Office of Nuclear Energy on new institutional approaches to limit the spread of the sensitive aspects of the nuclear fuel-cycle and create alternatives to the need for these technologies, such as Reliable Nuclear Fuel Supplies (RNFS) and the establishment of the IAEA fuel bank, and the Office of Nuclear Energy is involved in research and development of alternative and improved technologies.

The NNSA Office of Defense Nuclear Nonproliferation (NA-20) also works directly with countries with credible plans for nuclear power to support the establishment of an infrastructure that emphasizes nuclear safeguards, security, and nonproliferation obligations. Many of the countries currently considering nuclear power have limited experience with nuclear energy. As a result, many may be unprepared to handle the quantities of nuclear material and technology associated with a nuclear power program. The NNSA Office of Defense Nuclear Nonproliferation works with its international partners through technical engagement projects to develop the infrastructure necessary for effective nuclear material stewardship. These partnerships include a range of activities that cover all aspects of nuclear development and ensure that the necessary training, equipment, and expertise are in place to allow for a safe, secure, and peaceful nuclear power program. The Office of Defense Nuclear Nonproliferation also works with the Department of State and the Nuclear Regulatory Commission in the consideration of various export licenses as well as the development of regulatory authorities in developing nuclear power states.

THE INTEGRATED UNIVERSITY PROGRAM

Rep. Edwards. Mr. Administrator, how are NNSA, DOE/NE, and the NRC coordinating the $15M Integrated University Program? Is there a guiding principle to address technology issues that are common to all three agencies? For example, technology approaches to reducing the risk of nuclear material diversion or enhancing nuclear security may be one such common element.

Mr. D'Agostino. NNSA, DOE/NE, and the NRC coordinate their respective pieces of the Integrated University program as described in the report, "Report to the House and Senate Appropriations Committee on the Integrated University Program, Department of Energy – Office of Nuclear Energy, National Nuclear Security Administration – Office of Defense Nuclear Nonproliferation, Nuclear Regulatory Commission, September 30, 2009." NNSA's contribution to the program is $15 million, and it is coordinated with separate contributions from the Office of Nuclear Energy and the Nuclear Regulatory Commission. This coordination includes semi- annual meetings for discussing program status updates and new thrust areas; describing the type, duration, and targets of awards, fellowships, and scholarships; comparing university awardees; and collaborating on metrics to measure progress and success. The focus has been centered on avoiding duplication of awards and defining appropriate award "lanes" to meet IUP objectives, both collectively and individually. In FY 2010 the program will continue to focus on avoiding duplication and will also develop joint opportunities, where possible and appropriate, for meeting common requirements through applications of multiple-use technologies. The three agencies may also work on developing similar metrics to track progress, may engage with other agencies that provide energy-related support to universities, such as the National Science Foundation, and will participate in each others' annual university program reviews.

The Department of Energy's Office of Nuclear Energy (DOE_NE), the National Nuclear Security Administration's Office of Defense Nuclear Nonproliferation, and the Nuclear Regulatory Commission (NRC), plan to continue working together to coordinate their support for university programs.

In order to be able to understand better the current state of the educational infrastructure, the DOE-NE, NNSA, and the NRC have agreed to consider collaborating on an infrastructure assessment to evaluate U.S. universities' existing equipment.

Rep. Edwards. How does NNSA view this specific program opportunity to engage University research and the preparation of the "next generation" of nuclear professionals? Apart from the Integrated Program, is there a specific way that NNSA is reserving research funds to be directed toward the University community, as opposed to sub-contracted to the Universities through the National Laboratories?

Mr. D'Agostino. NNSA considers the development of the next generation of researchers in the nuclear nonproliferation and nuclear security fields to be a critical priority in meeting national requirements, emerging needs, and leadership initiatives. NNSA believes that its university programs are a link to inspire early career professionals and young researchers to contribute to these endeavors.

University research is an integral part of NNSA's mission. Our competitively bid proposals from the national laboratories often have university collaborations to fill gaps in capabilities in particular projects. The NNSA also uses competitive Broad Area Announcements or Funding

Opportunity Announcements to fill gaps at the program level. Finally, universities are often involved as collaborators in our small business research.

WEDNESDAY, MARCH 10, 2010.

FY2011 BUDGET FOR DEPARTMENT OF ENERGY NUCLEAR NONPROLIFERATION

WITNESS

STEVEN K. BLACK, CHIEF OPERATING OFFICER, OFFICE OF DEFENSE NUCLEAR NONPROLIFERATION, NATIONAL NUCLEAR SECURITY ADMINISTRATION, U.S. DEPARTMENT OF ENERGY

Mr. PASTOR. The hearing will come to order. Good afternoon.

We have before us today Steven Black, Chief Operating Officer for the Office of Defense Nuclear Nonproliferation. He will be presenting the President's Fiscal Year 2011 budget request for the Office of Defense Nuclear Nonproliferation.

The President committed to an aggressive nonproliferation agenda in his first year in office. He pledged to secure all vulnerable nuclear materials worldwide in 4 years, accelerate the reduction of Russian and U.S. nuclear weapons stockpiles through a new agreement and is seeking to update the agreement for Russia to dispose of a surplus of weapons grade plutonium. Fiscal year 2011 supports these commitments with a proposed $2.7 billion, which is $550 million above fiscal year 2010.

Securing vulnerable nuclear material is a laudable goal, a goal that this Committee supports. However, the magnitude of the increase, 26 percent, raises concerns whether the increase can be effectively executed in a single year. Significant portions of the program depend on finalizing agreements with other nations, something that is notoriously difficult to firmly nail down in time.

There may be justification to fund activities that are uncertain but overpromising on execution, risk, skepticism toward this request and planned future spending increases. The program has made significant progress in reducing carryover in the last several years. We will continue to expect you to meet your commitments to the public. We are interested in this hearing to hear the details of how you believe you can execute this funding and your defense of the choices made in the nonproliferation request.

Mr. Black, your written testimony will be entered into the record. After the hearing, you may have some questions to be answered for the record, and I ask that you have the responses and any supporting material requested by the subcommittee to be delivered in final form to the subcommittee no later than 4 weeks from today.

I ask that if members have additional questions they would like to submit for the record, that they please do so to the subcommittee by 5 p.m. this afternoon.

With those opening comments, I would like to yield to the ranking member for any opening comments that he would like to make. Rodney.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman. Mr. Black, welcome.

Mr. BLACK. Thank you, sir.

Mr. FRELINGHUYSEN. As the chairman has stated, this is the largest programmatic increase in our bill, the nonproliferation portion, and obviously it shows the administration's support for these important programs.

Last week we heard testimony from your colleagues who are responsible for maintaining our nuclear stockpile, nuclear navy, Mr. D'Agostino and company. I count myself among the strongest supporters for their work, and I know many of my colleagues on this subcommittee feel the same. That didn't spare them from some of the pointed questions regarding the administration's proposed increases for weapons in naval reactors programs.

My constituents are increasingly concerned about the country's growing budget deficit and are calling for budget cuts, not budget increases.

I hope you will tell us this afternoon just why your request is needed, not only why this request is needed, but how it will be spent effectively and efficiently.

You will have an opportunity this afternoon to explain to us your priorities and how the expenditure of these funds should help our security and that of our allies. I also hope you will be able to explain how your request builds on the administration's initiatives, including the nuclear posture review and the national security enterprise concept.

Mr. Black, taking into account the shift and scope in your accounts, approximately two-thirds of your increased budget request is to support the President's pledge to secure all vulnerable nuclear material worldwide within 4 years. While this is a laudable goal, it is not well defined and I am worried about its implementation.

Similar programs in Russia have been successful, but there are concerns about how well the Russian government will sustain the improvements and the investments we made. I hope that you have incorporated the lessons we have learned through our and, shall we say, your career experience with Russia so we don't find ourselves in the same position with other countries.

On a more positive note, I have noted that you are wrapping up your elimination of weapons grade plutonium production program this year. This is a major success story and it significantly improves U.S. security by closing plutonium producing reactors. That said, Mr. Black, this is still a dangerous world. We want to thank you and the people behind you here this afternoon for the hard work they perform each and every day.

As we work through our questions, we hope you will be able to give us the confidence that your proposed increase is built upon rigorous analysis, and that it will be well spent, and I am sure you will give us that.

Thank you for your time, Mr. Chairman. Thank you, Mr. Black.

Mr. PASTOR. Mr. Black.

Mr. BLACK. Thank you very much, sir. As you said, the President is requesting $2.7 billion for this nonproliferation program, an increase of 26 percent over last year. We are, indeed, essentially trying to prevent a nuclear weapon from falling into the hands of ter-

rorists and to stem further proliferation of nuclear weapons and materials technology and expertise required to build them.

At the same time, I am not one to hype the threat. It is not easy to build a nuclear weapon, but the consequences of a nuclear attack would be so dire that we would be greatly underserving the American public if we failed to do everything we could as quickly as we can.

The President has, therefore, challenged us and the international community to accelerate our material security efforts over the next 4 years. The fiscal year 2011 budget you have reflects the initial investment needed to meet this challenge. Our fundamental priority is securing nuclear materials where they are stored, if we can, because that is the most effective way to keep bomb material out of terrorist hands.

These first line of defense programs are at the heart of the President's 4-year effort and they drive the increases requested for the GTRI and MPC&A programs. In fact, the largest portion of our budget is aimed at making sure vulnerable nuclear material is protected at its source, removed or disposed of. After that, our priority is to create multiple layers of defense, such as deploying radiation detection monitors at critical transit points so we can intercept this dangerous material as far from our shores as possible.

One of my colleagues has recently been invoking the movie "Charlie Wilson's War" to illustrate the importance of following through on our nuclear security efforts and making sure we get the endgame right. Our work in Russia has, indeed, been going on for many years, but it is finite, and it is drawing to a close, in part because we have largely been successful in helping secure Russia's vast store of nuclear material and weapons. There is, however, some new work scope to complete, and we have identified some new problem areas that ought to be addressed before we leave.

It will do us little good to have spent years working to improve security in Russia if we bumble the endgame and fail to help our partners get a sustainable system of security in place.

The FMD program is also key to our material security effort. It is a large part of the budget request this year and is focused on eliminating 68 tons of plutonium in the U.S. and Russia. Of the funds requested for FMD, fully 87 percent is for the U.S. part of the program, and it will use the energy value of dismantled warheads no longer needed for our defense to produce electricity for American homes.

The Russians have agreed to a hard cost cap of $400 million, and they will cover the full remaining cost of their own program. MOX construction in Savannah River has been underway now for over 2 years. It is on schedule and within budget.

As the ranking member has noted, our ability to get the job done is also demonstrated by something we are not requesting, which is funds to shut down the last three plutonium production reactors in Russia. Both reactors in Seversk were shut down already 6 months ahead of schedule, and the last and third one in Zelenogorsk should be shut down later this year, and we are therefore not therefore requesting any funds for that program.

Without overpromising, we do believe that we are confident to get this large amount of work done because we have put in place

contracts and procedures that streamline the complicated processes involved in contracting overseas. We have also successfully decreased our personnel vacancy rate from 17 percent last year at this time to 5 percent today.

Finally, we have steadily reduced our end-of-year uncommitted balances every year for the past 5 years. In the last 4 years, we have come in under the departmental threshold of 13 percent for uncommitted carryover. In 2009, the two programs at the heart of the President's 4-year plan, GTRI and MPC&A, they have come in under 9 percent.

This budget request will also allow us to continue to provide vital support to the IAEA and to the Nuclear Suppliers Group, and we want to continue to revitalize U.S. safeguards technology and the human capital base, both of which have suffered attrition and atrophy over the years.

Last, we want to continue using and investing in the world class capabilities of the Department's national laboratory complex to conduct the R&D needed for the new technologies that will support the Nation's arms control and nonproliferation efforts.

In summary, I would like to thank the committee for your longstanding and continued support of our efforts, which are newly ambitious. We are poised to play a critical role in preventing terrorists, rogue states, and proliferators from acquiring nuclear weapons or their components.

I appreciate the opportunity to appear before you, and I look forward to taking your questions.

[The statement of Mr. Black follows:]

Statement of Steven K. Black
Chief Operations Officer
Office of Defense Nuclear Nonproliferation
National Nuclear Security Administration
U.S. Department of Energy
Before the
House Appropriations Subcommittee on Energy and Water
On the
Fiscal Year 2011 President's Budget Request
March 10, 2010

Thank you, Mr. Chairman, and Committee Members, for the opportunity to present the Department of Energy's National Nuclear Security Administration (NNSA) Fiscal Year 2011 President's Budget Request for the Office of Defense Nuclear Nonproliferation.

The Defense Nuclear Nonproliferation mission is both critical and multi-faceted: to provide policy and technical leadership to limit or prevent the spread of Weapons of Mass Destruction (WMD)-related materials, technology, and expertise; to advance technologies to detect WMD-related proliferation worldwide; and to eliminate, reduce, or secure surplus nuclear weapons-related materials. In short, we detect, deter, secure, or dispose of dangerous nuclear and radiological materials worldwide.

The President's FY 2011 Budget Request for the Defense Nuclear Nonproliferation portfolio is $2.69 billion, an increase of 25.8% from FY2010. As NNSA Administrator D'Agostino has stated, this budget request is a "direct and tangible display of the President's commitment to this mission, and a demonstration of the critical role NNSA plays in implementing the President's unprecedented nuclear security agenda." NNSA's Defense Nuclear Nonproliferation program is a key component of the President's nonproliferation vision, and we are working — together with our more than 130 international partners — to achieve these global security goals.

This comprehensive nonproliferation, nuclear security, and arms control agenda was outlined in the President's April 2009 speech in Prague, Czech Republic and consists of several key objectives, including:

- Implementing a new international effort to secure all vulnerable nuclear materials worldwide in four years;
- Taking concrete actions toward a world without nuclear weapons;
- Breaking up nuclear black markets and halting nuclear smuggling; and
- Strengthening the Nuclear Nonproliferation Treaty (NPT).

The FY2011 Defense Nuclear Nonproliferation Budget Request can be summarized into these four major categories of effort. This FY2011 request funds efforts to support the President's nuclear security vision, as an early step in meeting this multi-year initiative.

Additionally, within these four categories, we are making solid contributions in cross-cutting Administration and NNSA priorities, including strengthening the nation's Science and Technology (S&T) base, reinvigorating America's scientific and technical human capital, and upholding our strong commitment to effective project management.

Specifically, our $2.69 billion FY2011 request includes:

- More than $1 billion for the Fissile Materials Disposition (FMD) program to dispose of surplus plutonium and highly enriched uranium (a 47 percent increase) by constructing a MOX Fuel Fabrication Facility and a Waste Solidification Building, developing a capability to disassemble nuclear weapon pits, and supporting Russian plutonium disposition activities. The FY2011 request aligns management and funding responsibilities for the interrelated surplus plutonium disposition activities, in support of U.S. nonproliferation and arms control objectives, under a single appropriation. The FY 2011 Russian Fissile Materials Disposition Request seeks $100 million of a total $400 million U.S. commitment to support plutonium disposition in Russia.
- Over $590 million for the International Nuclear Materials Protection and Cooperation (INMP&C) program (an increase of $18 million) for additional Material Protection Control & Accounting (MPC&A) upgrades, expansion of MPC&A cooperation with countries outside of Russia and the former Soviet Union, and additional deployment of radiation detection systems to combat illicit trafficking of nuclear and other radioactive materials under the Second Line of Defense program;
- Nearly $560 million for the Global Threat Reduction Initiative (GTRI) (an increase of 68 percent) to remove and secure high-priority vulnerable nuclear material around the world in four years, accelerate additional conversions of highly enriched uranium (HEU) fueled research reactors to the use of low enriched uranium (LEU) fuel, and to provide a comprehensive approach to permanently deny terrorists access to nuclear and radiological material at civilian sites worldwide;
- Over $350 million for the Nonproliferation and Verification Research & Development (R&D) program (an 10 percent increase) to provide the key technical support for the President's arms control and nonproliferation agenda; and
- Nearly $156 million for the Nonproliferation and International Security (NIS) program (a decrease of almost 17 percent, primarily the result of a reduction in activities to support verification of disablement of the Democratic People's Republic of Korea nuclear program) to safeguard nuclear material; control the spread of WMD technologies, equipment, and expertise; and verify nuclear reductions and compliance with international regimes, treaties, and agreements.

Securing Nuclear Weapons and Materials from Terrorists

The President's April 5, 2009 speech in Prague presented a vision to address the international nuclear threat. His call to secure all vulnerable nuclear materials around the world within four years is a cornerstone of this strategy. Within the U.S. Government, the Office of Defense Nuclear Nonproliferation will perform a significant portion of this crucial nuclear security work. Implementing this nuclear security initiative will require expanding and accelerating our security

cooperation with Russia and other key countries, pursuing new partnerships to secure nuclear materials, and strengthening nuclear security standards, practices, and international safeguards.

Our FY 2011 budget request funds early efforts to support the Administration's nuclear security vision, as a first step in meeting this multi-year initiative. Two Defense Nuclear Nonproliferation programs are providing sizeable contributions to this goal: the Global Threat Reduction Initiative and the International Nuclear Materials Protection and Cooperation programs.

The Global Threat Reduction Initiative (GTRI) mission is to reduce and protect vulnerable nuclear and radiological materials at civilian sites worldwide. To execute this mission, GTRI: 1) Converts research reactors and isotope production facilities from the use of highly enriched uranium (HEU) to low enriched uranium (LEU); 2) Removes and disposes of excess nuclear and radiological materials; and 3) Protects high-priority nuclear and radiological materials from theft and sabotage. These three key subprograms of GTRI -- Convert, Remove, and Protect -- provide a comprehensive approach to achieving its mission and denying terrorists access to nuclear and radiological materials.

The 68 percent GTRI increase in the President's FY2011 budget request accelerates these threat reduction activities to secure all vulnerable nuclear materials in four years. Among other priorities, the FY2011 budget request allows GTRI to initiate efforts to remove over 1,650 kilograms of excess HEU and convert an additional 7 research reactors to the use of low enriched uranium fuel. Additionally, as part of its mission to reduce the use of HEU in civilian applications globally, GTRI will address the anticipated supply shortage of the medical isotope Molybdenum-99 (Mo-99) by implementing projects demonstrating the viability of non-HEU based technologies for large-scale Mo-99 production.

The International Nuclear Materials Protection and Cooperation (INMP&C) program works in the former Soviet Union and other countries of concern to secure nuclear weapons and weapons-usable nuclear materials. The Material Protection Control & Accounting (MPC&A) program achieves this mission by providing security upgrades at nuclear sites, consolidating these materials at fewer sites that are more secure, and supporting the development of sustainable MPC&A systems. Beyond security upgrades, the MPC&A program also works with partner countries to develop regulations and procedures concerning the material control, accounting, and physical protection of nuclear materials, including in the areas of training, education, transportation, nuclear security culture, protective forces, material measurements, nuclear material accounting and inspections. In Russia, INMP&C partners include the Russian Navy, the Russian Ministry of Defense (MOD), the State Corporation for Atomic Energy (Rosatom), and Rostekhnadzor, the Russian nuclear regulatory agency.

As agreed under the Bratislava Nuclear Security Initiative of 2005, the majority of security upgrades in Russia, including all MOD warhead storage sites, were completed by the end of 2008. As a result of this success, some important upgrade work was added to MPC&A's mission after February 2005, and that work is currently being accelerated to support the President's four year nuclear security goal. Although this particular program is one of our more mature threat

reduction efforts and has made considerable progress in Russia and elsewhere, work remains to be done to secure other vulnerable nuclear materials around the world within four years.

The FY2011 INMP&C budget request allows this program to continue additional nuclear security upgrades at the 19 (out of 214) remaining Russian buildings within the program's scope where upgrades have not been completed, and to complete five of these 19 buildings in FY2011. It also provides for comprehensive sustainability efforts to continue transitioning maintenance of completed upgrades to Russia. Under the FY2011 budget request, the INMP&C program also would expand nuclear security cooperation to new partner countries outside of Russia and states of the former Soviet Union, in order to meet the Administration's global nuclear security agenda.

Toward a World Without Nuclear Weapons

The President has acknowledged that the goal of a world without nuclear weapons will not be reached quickly, but he stated that America will take concrete steps toward this goal. Our Nonproliferation and International Security (NIS) program is engaged actively in these efforts, including our current support in negotiating a START follow-on treaty with the Russian Federation and supporting efforts towards ratification of the Comprehensive Nuclear Test Ban Treaty (CTBT). In FY2011, NIS will build upon these current efforts by continuing to provide policy and technical support for nonproliferation and arms control treaties and agreements that strengthen the nonproliferation regime and promote transparent WMD reductions. In addition, NIS also will continue to develop and deploy transparency measures to ensure verifiable nuclear reductions and compliance with nonproliferation and arms control agreements. This includes work that benefits from support provided by the Nonproliferation and Verification Research & Development (R&D) program, to develop technologies that detect potential clandestine weapons programs or illicit diversions and provide options for the dismantlement of nuclear equipment, weapons, and components, and develop new monitoring tools to ensure that the obligations of foreign governments are being met. Particular emphasis will be placed on the development of scientifically sound verification approaches that meet the President's goal of an effectively verifiable Fissile Material Cut-Off Treaty (FMCT) while protecting critical national security equities.

Investments in NNSA's R&D program provide the core U.S. capability for advances in both U.S. and international capabilities to monitor arms control and nuclear-related treaty obligations, such as those conferred by the NPT, the FMCT, and the CTBT. The R&D program contribution includes research, development, production, and delivery of space- and ground-based sensors to detect nuclear detonations. Additionally, this program leads the nonproliferation community's R&D effort to advance next generation detection capabilities to detect foreign nuclear materials and weapons production facilities and processes. In keeping with the President's commitment for verifiable treaties, in FY2011 the R&D program will include test and evaluation activities to demonstrate new U.S. treaty monitoring technologies and capabilities.

Our Fissile Material Disposition (FMD) program is also a crucial component of the Defense Nuclear Nonproliferation contribution to the Administration's nonproliferation and arms control agenda, through its mission to eliminate both surplus weapons-grade Russian plutonium and U.S.

weapons-grade plutonium and HEU deemed excess to defense needs. The FY 2011 President's Budget Request supports interrelated surplus plutonium disposition activities under FMD within the Defense Nuclear Nonproliferation appropriation to realign funding and management under a single appropriation. Instead of building a new facility, the Department of Energy is exploring as an alternative approach the combination of the Office of Environmental Management Plutonium Preparation Project and the NNSA's Pit Disassembly and Conversion Project in a single project located in the existing K-Area Facility at the Savannah River Site. In complying with the Department's project management order, DOE Order 413, we will develop a conceptual design report, along with the requisite project support documentation to move toward a Critical Decision 1 (approval of alternative selection and cost range) determination. This preparatory work prior to alternative selection will be completed approximately 12-18 months from the start of such work.

The MOX Fuel Fabrication Facility (MFFF) is scheduled to start operations to produce MOX fuel in 2016. Overall, the MOX project is 38 percent complete with two significant buildings (the 57,000 square foot Administration Building and the 38,000 square foot Secured Warehouse) completed in 2009, for a total of 10 out of 17 facilities completed to date. The Waste Solidification Building (WSB) is scheduled to begin operations in 2013 to support MFFF cold start-up testing. Overall, the WSB project is 26 percent complete.

In 2009, the United States and Russia completed negotiations on a protocol to amend the 2000 Plutonium Management and Disposition Agreement (PMDA). The two countries are exchanging final versions of the agreed upon text and expect to sign it in 2010. The revised agreement calls for both countries to begin disposing of their surplus plutonium in the 2018 timeframe. The amended PMDA will reflect Russia's revised plan for disposing of its 34 metric tons of surplus weapon-grade plutonium using fast reactors under certain nonproliferation conditions, as well as Russia's commitment to implement its program independent of any assistance beyond the proposed $400 million U.S. financial contribution.

Congress appropriated $200 million in a FY 1999 Supplemental Appropriation to support Russian plutonium disposition activities, but the remaining balances were rescinded in FY 2008 due to a lack of progress in Russia. The FY 2011 Russian Fissile Materials Disposition Request seeks $100 million of a total $400 million commitment to support plutonium disposition in Russia. The balance of the more than $2 billion in remaining cost associated with Russian plutonium disposition would be borne by Russia and non-U.S. contributions.

Breaking up Black Markets and Halting Nuclear Smuggling

As a complement to our facility-based physical security efforts that serve as a first line of defense, NNSA executes a number of programs that provide an additional layer of defense by detecting and preventing illicit transfers of nuclear-related materials, equipment, and technology. These programs help implement the President's Prague speech call to build on efforts to break up nuclear black markets and detect and intercept dangerous materials in transit.

Within the Office of International Nuclear Materials Protection and Cooperation, the Second Line of Defense (SLD) Core program cooperates with foreign partners to install radiation detection equipment at borders, airports, and strategic ports in Russia, other former Soviet Union states, Eastern Europe, and other key countries, and to provide related training and support. The SLD Megaports Initiative likewise cooperates internationally to deploy radiation detection equipment and provide related training to key, strategic, and high volume ports. The FY2011 budget request provides for SLD installations at an additional 55 sites in 19 foreign countries, and for the completion of Megaports installations and activities at 4 additional foreign seaports.

The Office of Nonproliferation and International Security (NIS) supports efforts to halt illicit trafficking by strengthening global capacity to prevent the theft, diversion, and spread of nuclear materials, technologies, and expertise. Specifically, NIS is training international partners in export control, licensing, enforcement, interdiction, and physical protection of nuclear materials. These programs include the International Nonproliferation Export Control Program (INECP), which works with foreign country partners as well as domestic USG export enforcement agencies to strengthen national export control systems, practices, and awareness. NIS also provides specialized support to domestic licensing, enforcement, and interdiction agencies through such efforts as the Interdiction Technical Analysis Group (ITAG). ITAG supports Department of State-led interagency interdiction working groups that review potential proliferation activity and transactions in the nuclear, missile, and chemical and biological fields, by providing technical analysis of proliferation-relevant commodities and technologies through reachback to the National Laboratories. The FY2011 budget request supports the continuation of these efforts. Finally, the FY2011 budget request increase for the Nonproliferation and Verification R&D program will advance development, testing, and evaluation of next generation capabilities to detect the illicit diversion of special nuclear materials, both internal and external to nuclear facilities.

Strengthening the Nuclear Nonproliferation Treaty

President Obama has also called upon America and its partners to strengthen the Nuclear Nonproliferation Treaty (NPT) as a basis for cooperation. The Office of Nonproliferation and International Security (NIS) will continue efforts to strengthen nonproliferation regimes and multilateral organizations, by providing international policy expertise and technical responses to address issues concerning the control of proliferation-sensitive items, in order to help shape nonproliferation policy initiatives both domestically and multilaterally. NIS will also help develop a new international civil nuclear framework to further the President's energy security and environmental goals without jeopardizing national security. NIS will work within existing regimes and arrangements, including via peaceful nuclear cooperation agreements and the Nuclear Nonproliferation Treaty review process, among others, to help develop and advance this new framework.

In FY2011, NIS also will work to strengthen and support the International Atomic Energy Agency (IAEA) — and the international safeguards system it administers — to confront the challenges posed by nuclear proliferation and global nuclear energy expansion. NIS will continue to implement the Next Generation Safeguards Initiative (NGSI), which is working to

revitalize the U.S. technical and human capital base supporting International Atomic Energy Agency (IAEA) safeguards, and to develop the tools, approaches, and authorities needed by the IAEA to fulfill its mandate far into the future. This includes developing and implementing new safeguards concepts and approaches, and working with partners to develop nuclear infrastructure in countries pursuing nuclear energy programs that emphasizes safeguards, security, and nonproliferation obligations. NIS also will implement IAEA safeguards, including the Additional Protocol, at DOE facilities and continue to engage industry and the IAEA to incorporate safeguards requirements early-on in the facility design and construction phases. NNSA will continue our Next Generation Safeguards Initiative (NGSI), begun in 2008, to strengthen international safeguards, revitalize the U.S. technical and human resource base that supports them, and develop the tools, approaches, and authorities needed by the IAEA to fulfill its mandate far into the future. Additionally, NIS will continue bilateral safeguards partnerships to develop new safeguards approaches, help states implement their NPT safeguards obligations, and facilitate the nuclear safety and security infrastructures required for new countries to access the peaceful benefits of clean nuclear energy.

Cross-Cutting Priorities

Integrated across these four broad categories of effort, the Defense Nuclear Nonproliferation program is also implementing over-arching Administration and NNSA priorities, including:

- Strengthening the nation's Science and Technology (S&T) base;
- Reinvigorating America's scientific and technical human capital; and
- Upholding our strong commitment to effective project management.

Increases in our FY 2011 budget request directly support Presidential and NNSA priorities to strengthen the nation's Science and Technology base. The increase in the Nonproliferation and Verification R&D budget by $34 million, or 10 percent, for example, will expand the program's basic and applied research for nonproliferation and national security applications and fund new technical capabilities to meet the President's nonproliferation and arms control treaty monitoring objectives. The R&D program remains the nation's largest long-term basic R&D program in this area and supports not only NNSA customers but also the Departments of Defense, State, Homeland Security, and the Intelligence Community.

As Administrator D'Agostino noted in his testimony last week, NNSA is working to develop and retain the next generation of scientists, engineers, and technical experts required to meet our critical mission. For example, through our Next Generation Safeguards Initiative, we will significantly develop human capital within the DOE National Laboratories by supporting over 100 Next Generation Safeguards Initiative summer interns at the Laboratories, funding postdoctoral fellowships in international safeguards, and sponsoring six safeguards courses. In FY2011 and beyond, our R&D program will continue developing the next generation of nuclear engineers and scientific researchers through a $15 million per year, university-based program – the ten-year Integrated University Program. This program is coordinated with component efforts by the DOE Office of Nuclear Energy and the Nuclear Regulatory Commission.

To further develop scientific and technical human capital, the Office of Fissile Materials Disposition has co-sponsored (with DOE's Office of Environmental Management) several Regional Nuclear Suppliers Outreach events for American suppliers interested in providing services and products in the nuclear sector. At these events, U.S. companies are given insight into current and future markets for products and services. Additionally, they learn the requirements of the Nuclear Quality Assurance program applicable not only to DOE but to commercial nuclear industry. This forum helps ensure that NNSA has an adequate number of qualified commercial suppliers, and helps more American companies become qualified to supply similar products and services to the commercial nuclear power industry. Currently, more than 1,700 people are employed by the project at Savannah River Site with more than 4,000 working on MOX-related activities in the United States.

As Administrator D'Agostino also noted last week, with the increased resources you provide us comes our increased responsibility to be effective stewards of taxpayers' money. The Defense Nuclear Nonproliferation program takes this responsibility seriously, and we implement the highest standards of project management practices to make our programs more efficient and more cost-effective. Our MOX Fuel Fabrication Facility effort is a good example, as the largest construction project in the Southeast United States and the nation's largest current nuclear construction project. Despite their size and complexity, both the Mixed Oxide Fuel Fabrication Facility (MFFF) and Waste Solidification Building (WSB) projects are progressing on schedule and within budget in accordance with their approved cost and schedule baselines. Additionally, the MFFF project recently celebrated a milestone of 2.5 million work hours without a lost day of work due to injury.

As another effective project management element, we are increasing our cost-sharing efforts, not just as a matter of fiscal responsibility to the American public but as a force multiplier to address high-priority international nuclear security and nonproliferation objectives. Our cost-sharing partnerships include both monetary transactions and in-kind contributions, and additional Defense Nuclear Nonproliferation programs are incorporating cost-sharing as part of their revised program model and project management practices. With respect to monetary donations, to date, Defense Nuclear Nonproliferation has received approximately $60 million from seven overseas partners to execute our internationally-recognized nonproliferation work. However, our programs also utilize in-kind cost-sharing agreements. For example, under the Second Line of Defense Core Program, DOE/NNSA and Russia's Federal Customs Service have agreed to equip all of Russia's approximately 350 border crossings by 2011, and the costs for this effort will be split approximately evenly between DOE/NNSA and the Russian Federal Customs Service. The Second Line of Defense/Megaports Initiative has 12 cost-sharing arrangements in place for portal monitoring equipment installation and training. Under our Fissile Materials Disposition program, although the United States has proposed a $400 million contribution in support of plutonium disposition efforts in Russia, the Russia Federation bears responsibility for the approximately $2 billion remaining required to implement its own plutonium disposition commitment. Additionally, over the past 10 years, the Russian Federation has provided over $30 million toward the cost of conducting research and development of the Gas Turbine-Modular Helium Reactor (GT-MHR) for plutonium disposition in Russia, and intends to continue to support that effort on a 50/50 cost sharing basis in the future.

Since 1994, DOE/NNSA has spent approximately $2 billion on Russian nuclear security work. Sustainability is the key to ensuring that these national security investments continue to be utilized to their full potential. We continue to stress our Russian partners the importance of sustaining these systems, including the eventual need for Russia to take the full financial responsibility for sustaining completed nuclear security enhancements. To this end, the INMPC&A program recently reached agreement with Russia's Rosatom on a Joint Sustainability and Transition Plan. This plan identifies specific timelines for each site to take over financial responsibility for sustainability related activities in Organizational Planning, Human Resource Development, Regulatory Development, Operational Cost Analysis, Maintenance, Performance Testing, and Configuration Management. We believe that such sustainability efforts, combined with the other project management practices referenced, will return the maximum benefit to the American public for their investment in global security and America's national security.

Conclusion

In conclusion, I am proud of NNSA's nonproliferation accomplishments to date. The FY2011 Budget Request for Defense Nuclear Nonproliferation builds upon a strong foundation of past achievements that will help us reap genuine security dividends from our nonproliferation efforts in the future. We have a narrow window of opportunity here and now, making use of fleeting global momentum on nonproliferation already underway, to renew our commitment to nonproliferation and nuclear security. The President's April 2010 Nuclear Security Summit will increase this momentum, by providing a forum and opportunity for leaders from around the world to engage each other's attention and creativity, and engender an intensified security awareness and commitment at the highest levels. Although the challenges to nuclear security are many, the potential benefit from expanded and accelerated international cooperation to address these challenges is enormous. Together with our interagency and international partners, through *concerted* action, and the continued support of the Congress and the American people, we can reach this shared goal. I thank the Chairman and the Committee for your time.

Defense Nuclear Nonproliferation

Funding Profile by Subprogram

	(dollars in thousands)		
	FY 2009 Actual Appropriation	FY 2010 Current Appropriation	FY 2011 Request
Defense Nuclear Nonproliferation			
Nonproliferation and Verification Research and Development	356,281	317,300	351,568
Nonproliferation and International Security	150,000	187,202	155,930
International Nuclear Materials Protection and Cooperation	460,592 [a]	572,050	590,118
Elimination of Weapons-Grade Plutonium Production	141,299	24,507	0
Fissile Materials Disposition	41,774	701,900	1,030,713
Global Threat Reduction Initiative	404,640 [b]	333,500	558,838
Congressional Directed Projects	1,903	250	0
Subtotal, Defense Nuclear Nonproliferation	**1,556,489**	**2,136,709**	**2,687,167**
Use of Prior Year Balances	-11,418	0	0
Total, Defense Nuclear Nonproliferation	**1,545,071**	**2,136,709**	**2,687,167**

NOTES: FY 2009 funds appropriated in Other Defense Activities for the Mixed Oxide Fuel Fabrication Facility, and in Weapons Activities for the Waste Solidification Building and Pit Disassembly and Conversion Facility (FY 2009 and FY 2010) are not reflected in the above table.

Mr. PASTOR. Thank you very much. Mike, how many years was it when we were up in Russia, when we went to the submarine?

Mr. SIMPSON. I want to say it was about 6 years ago, or 7.

Mr. PASTOR. We had the opportunity with, at that time Chairman Hobson, and at least at that time, in my opinion, it was that the Russians were very cooperative in terms of opening up their site and showing us how they were—in showing some security, and then we went up to the submarine base, which we found very interesting, with the admirals. I just hope that our work was successful there.

Mr. SIMPSON. I hope so.

Mr. PASTOR. We had lunch with them, and it was quite a treat to have lunch with the Russian admirals up there.

Mr. FRELINGHUYSEN. I am sure it was.

Mr. PASTOR. But at that time it was—in your testimony, you talk about now is 6 years later, 7 years later, and it seems we are winding down the program. You made a comment that there are still some problem areas that we need to solve.

Would you enlighten us on that, your comment there?

Mr. BLACK. Yes, sir, I certainly will, Mr. Pastor, and Mr. Simpson. I understand that you went on that trip with Congressman Hobson back in 2003. And Andrew Bieniawski was actually running the DOE Moscow office at that time and I believe accompanied you on that trip, so you certainly did see some very interesting things.

Mr. SIMPSON. I thought he looked familiar.

Mr. PASTOR. Well, he held up our end with the Russian admirals.

Mr. BLACK. Excellent, nice job.

Mr. PASTOR. Well, you were there.

Mr. BLACK. Well, over the years we have done an awful lot of work in Russia. Thus far we have completed security upgrades, 210 out of 229 nuclear material buildings throughout Russia, and we have completed security upgrades at 73 Ministry of Defense warhead sites. It is a very large scope of work and it represents roughly 92 percent of the entire scope of work that we envision for ourselves. There are 19 other buildings where we are continuing to do security upgrades. That is the work that is going on right now.

The willingness of the Russians to be supportive has waxed and waned with a variety of things, who is in the Kremlin, who is out. The price of oil, frankly, when the price of oil goes up over $120 a barrel, they get very aggressive and then when it falls below 70 or so they become a little more compliant. So that is one thing that has changed a little bit over the years.

But we believe, having worked in the Russian facilities, we have seen their strengths and weaknesses, we believe there are a few areas that need additional work. The Russians also agree with us on that. They have agreed to sit down with us and work out some additional work scope. It particularly deals with the insider threat.

But to be honest, sir, we are talking about deficiencies in security systems in Russian facilities, and we want to be mindful of the sensitivities of our Russian colleagues.

So if we wanted to go into great detail about the specifics of the deficiencies, I would ask if we could return and do that in a closed session.

Mr. PASTOR. You are almost tempting me to close the session now, but we won't.

Mr. BLACK. Okay, sir.

Mr. PASTOR. Well, we may accept your invitation.

Mr. BLACK. Please, because we have a story to tell, but the details of the deficiencies in the Russian security system really ought to be not done in an open setting.

Mr. PASTOR. I appreciate that, and we will probably take you up on your offer so that we can get into some greater details.

Mr. BLACK. Yes, sir, and we are prepared to answer any questions there.

Mr. PASTOR. Both the ranking member and I talked about the increase. I guess if there is a concern it is the ability of the organization to execute the funding increase in 1 year. Can you do all this work in fiscal year 2011 without carrying uncosted funds into 2012 and, along with that question is, what management measures are you taking to ensure that this funding is spent effectively and efficiently since, as you know, the President himself has said we need to spend every dollar very wisely.

Mr. BLACK. Yes, and we are keenly aware of the requirement to spend every dollar wisely. Although, over the years, as we all know, we have enjoyed the largesse of Congress and we thank you very much for increasing the resources available to us. But we also, as I indicated in my opening statement, do believe that we have done a very good job using the funds effectively and in a timely manner so that we don't have enormous balances carried over from one year to another. We have very specific work scope identified already for both GTRI and the MPC&A program, which are the bulk of the 4-year effort that you are talking about.

In the Global Threat Reduction Initiative Program, we want to convert seven additional research reactors from the use of HEU to LEU. We want to remove an additional 530 kilograms of HEU from countries such as South Africa, Mexico, Serbia, Ukraine and Belarus, and we have the bulk of these agreements. We have seven of the 10, and you mentioned the issue of needing international cooperation, and that is certainly true. We cannot parachute into a country in the middle of the night and send special ops teams to secure this material. It is all cooperative work. And you are absolutely right that we need cooperation. But we have all of the agreements we need to do the work in the MPC&A program, and we have seven of the 10 agreements that we need to do the GTRI work separate slated for fiscal year 2011.

Of the other three, we are guardedly optimistic that we will get these by the end of this year. Two of those are in South Africa and the third is in Ukraine. We are fairly confident that the new President of Ukraine will be receptive to the work. So we essentially have the international agreements we need.

As I indicated in my statement, we have staffed up quite a bit. We have about a 15-percent increase in Federal staffing. We are much closer to our ceiling than we were at this time last year, and we have some modifications to contracts like the IDIQ contract and the DICCE contract that allow us to execute procurement actions fairly quickly.

So, again, without overpromising, we do believe that we can effectively spend the fiscal year 2011 funds that we are requesting of you.

Mr. PASTOR. The second question, the management measures you are taking, was that in the staffing, additional staffing?

Mr. BLACK. Yes, sir, and the contracting. We worked very closely with the service center to set up some new contract vehicles that will allow us to make use of small businesses so that they can execute some of these fuel removals or do feasibility studies for research reactor conversions very quickly.

Mr. PASTOR. Thank you. Rodney.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Mr. Black, the committee directed a report in our fiscal year 2010 budget outlining how the defense nuclear nonproliferation prioritizes its investments across all the nonproliferation programs. Since the Committee hasn't received this report, can you describe how you prioritize your investments?

Mr. BLACK. Yes, sir. This is a really very interesting question, so I will be happy to answer. By the way, the report is on its way. But I do want to try and answer the question here.

Each program does have a prioritization scheme for trying to maximize the nonproliferation dollars within its program.

They are slightly different. For instance, in the Global Threat Reduction Initiative Program, they characterize the attractiveness of a material, whether it is nuclear or radiological and then there is a formula that involves the amount of material and where it is located, and that helps them determine how they are going to allocate their funds within GTRI.

MPC&A has a similar but slightly different formula, where they are looking at the consequence of loss if a particular type of material were lost to theft or diversion.

In the R&D program, the risk calculations have to do with the technological risks involved. So some technologies are high risk; that is, they are very far away, and they may be high payoff but that helps them make their determinations.

You asked specifically about how we do allocations of our priorities across these programs.

Mr. FRELINGHUYSEN. Let's just take R&D, and then R&D, let's say, versus overseas nonproliferation work. How do you actually balance there? How do you make sure that those marginal dollars are well spent?

Mr. BLACK. Yes, sir. There is a number of criteria that we look at. One of them is budgetary risk. Budgetary risk refers to the threat posed to a program or project by the projected amount of money. So, for instance, a capital construction project that doesn't have enough funding would be considered to be at budgetary high risk. That is one of the criteria that we would look at, is there a program at high budgetary risk.

Another criterion that we use is urgency; that is, how urgent is the problem. There ought to be some sort of impending crisis, if a program manager came to us and said I have got to have additional funding this year because otherwise a crisis will occur.

Policy priority refers to the degree of convergence of the proposal that a program manager brings to us and maybe what the Presi-

dent's policy is or a secretarial commitment or a treaty or a legal requirement.

Another one is an opportunity to save time or money on it. Sometimes we may have two proposals in front of us that are largely equal in terms of the nonproliferation benefit they provide. But one of them may give us an opportunity to accelerate ongoing work or take advantage of some economies of scale or maybe if we commit funds earlier in a project we might be able to save funds in the long run.

So that is an example of an opportunity to save time or money that might be one of the criteria we use.

There might be a unique opportunity, something that we didn't plan for, such as the denuclearization work that we did in Libya in 2003. That was not budgeted for in 2002 or requested in 2001. We used other money for that, but it was a unique opportunity. Nobody anticipated that the Libyans would suddenly come around and say, you know, we are willing to give up our centrifuge equipment and let you into our nuclear facilities and the like.

Mr. FRELINGHUYSEN. You had the flexibility to do that?

Mr. BLACK. Yes, sir. We have the flexibility to do that. But the point is that we have to take advantage of unique opportunities that present themselves. We don't know, for instance, when the North Koreans may relent in the six-party talks and say we are ready to let you guys come back into Yongbyon and begin the denuclearization efforts again.

So that is a unique opportunity. I only give it as an example of a unique opportunity, and it is one of the criteria that we use.

Other parties may be involved in this. We may have an opportunity to fund a project that maybe the Canadians will cosponsor with us and they will contribute money, as they have, or the Brits. Or maybe we have an industry partner who is willing to commit some private sector funds.

So all of these things get balanced as we look at how to spend, how we want to propose, put together our next year's budget.

There isn't a single formula that we can use, where we drop all the numbers in at this end and an answer comes out here. It involves a lot of programmatic judgment, it involves some political judgment, it involves some expertise from the laboratories and technological smarts.

But what I am trying to do is give you a list of some of the criteria that we will use and the report that we will send up, which is written and only in coordination, identifies what these various criteria are.

Mr. FRELINGHUYSEN. You would think in some cases you might want to signal a nuclear detection device at a high risk border security crossing.

Mr. BLACK. Yes.

Mr. FRELINGHUYSEN. But you might have to balance that against a judgment call in some other area.

Mr. BLACK. That is exactly right. We have to decide whether the nonproliferation benefit of putting, say, an SLD site on the border of Georgia or Armenia is worth not spending that money on export control improvement in another country.

Mr. FRELINGHUYSEN. So how do you actually——

Mr. BLACK. Well, as I say, it is a matter of judgment. It is like any other political judgment, frankly. We are trying to assess whether—and we have to ask ourselves this question every time we pull together a budget. We do it through the programming phase of our PPBS, the planning, programming, budget execution system, which is a year-long effort. It starts with strategic planning, and we get all these ideas on the table. We take several months to do strategic planning, blue sky thinking, think about all the things that we could do. That is a fiscally unconstrained exercise.

Mr. FRELINGHUYSEN. But sometimes things are by their very nature a lot more expensive, you know.

Mr. BLACK. Yes, and then in the second phase, the programming phase, that is when we have been given guidance by the Administrator saying these are the things I want you to focus on and these are the budgetary bounds beyond which you can't go. However much you want to do it, you can't bust this budget number. And then we have to fit all of our requirements and all of our great ideas into that budget. And then that is essentially how we do it. It is a very long involved corporate process, and a lot of people contribute to it. We have expertise from labs and budget experts and political experts.

As I say, it involves a lot of judgment and sometimes we are balancing things that we would prefer not to balance. Nobody really wants to have to decide on competing programs. They both appear to be valuable, but we have no choice, so we do.

Mr. FRELINGHUYSEN. I have more questions, but I think Mr. Simpson—thank you.

Mr. PASTOR. Mr. Salazar.

Mr. SALAZAR. Thank you, Mr. Chairman. Thank you for being here, Mr. Black.

Mr. BLACK. Yes, sir.

Mr. SALAZAR. For me, this is a fairly new arena.

Could you give us a breakdown as to what the funding request is towards Russia and other competing interests, other competing countries that actually receive some of this funding.

Mr. BLACK. I will give you an answer sort of off the top of my head, but I am going to also request your indulgence and ask if I can take the question back and come back.

Mr. PASTOR. Yes.

Mr. BLACK. Because this involves things that are obviously going to be gettable. It is available information, and I am in danger of giving you an incorrect answer.

Having said that, my sense is that roughly half of our budget is focused on Russia and the republics in the former Soviet Union, roughly half, or it involves materials that in some way are related to Russia; for instance, the FMD program. Half of that is Russia, half of that is the United States.

But that is off-the-cuff, and I would prefer to take the question and come back with a specific answer. Because we collect this information on an annual basis. We give it to the State Department, so it is gettable, and I would rather give it to you exactly.

Mr. SALAZAR. And so do you think that our work in Russia is being accomplished, is it almost completed? Are we going to be looking at the same requests for the next few years?

Mr. BLACK. As I say, our nuclear security upgrades work in Russia is roughly 92 percent done. It is finite. I mean, reasonable people could argue about whether this facility needs to be done or that one ought to be included or not included, but the fact is there are only a certain number of facilities in Russia. So it is finite and it is drawing to a close. We are closer to 100 percent than we are to the start of the work.

I think it is justified to put the amount of effort, the weight of effort into Russia and the republics of the former Soviet Union that we do do because that is where the vast bulk of the materials we are most worried about have resided. That is a threat that we have done a good job mitigating with our Russian partners over the years, and we can move on to other threats in Asia, in South Asia, in the Middle East, and deal with other issues.

But that is how I would answer your question about the focus of our attention and the weight of our budgetary effort.

Does that help, sir?

Mr. SALAZAR. Thank you, sir. Thank you, Mr. Chairman.

Mr. PASTOR. All right.

Mr. SIMPSON. Thank you, Mr. Chairman. I want to ask you some questions about MOX, but first I want to—when we were in Russia, one of the things that, as I said, this is 7 years ago, one of the issues was the cooperation that you mentioned with the Russians and our inability to access some sites. Are we doing better with the Russians? I notice you mentioned that when the price of oil goes up they become less cooperative and when it goes down—I expect that is because they get increased revenue from the oil and it is a substantial part of their overall budget that is spent in Russia that we spend there trying to secure this nuclear material. So I suspect when they have more money they are less interested in our help.

But how is the cooperation going and our access to these sites that heretofore we have had limited access to?

Mr. BLACK. Let me try to answer your question this way. In February of 2005, we signed an agreement under the previous administration called the Bratislava Nuclear Security Initiative, and it committed us to work on an accelerated basis to provide nuclear security upgrades to a certain number of sites in Russia.

We got that work done by the end of calendar year 2008 and then the Russians were pleased enough with our work in that area that they gave us additional work scope to do, and that is part of the reason that we have some additional work to do in Russia today.

As to how cooperative they are—so that points to the fact that, in my opinion, the more they work with us, the more they see that our hearts are pure.

The other thing is that we have variable success with different Russian agencies. The Ministry of Defense has been very forthcoming, and we have had a great working relationship with the Ministry of Defense. We also have an excellent relationship with the Russian Customs Service, and while we are not talking about nuclear security upgrades when I talk about Customs, I do want to make the point that we work with Customs to do the Second Line of Defense radiation portal monitors. The Russian Customs

Service has agreed to supply fully one-half of all the SLD sites that border Russia, 170 to 175 sites. There is a 50/50 cost share with Russia in that regard. So the point about the cost sharing is important because it is indicative of the extent to which the Russians themselves are committed to this work.

In the case of Rosatom, we have a slightly different issue. There is a civilian side and there is a military side. Some of the sites are more open and some of them are less open and we will probably never get access to the most secret sites, the warhead production facilities.

Mr. SIMPSON. How are we doing with the program that takes Russian nuclear scientists and tries to employ them in other fields so that they are not available to go to Iran or some other places that might try to recruit them?

Mr. BLACK. Our scientist engagement program, the GIPP program, has existed for, I don't know, 10 or 12 years, something like that. It is going very well.

It is not a large program, it is on the order of 15 to $20 million. Over the years we have engaged something like 16,000 scientists at 1,500 facilities, and it does still exist.

We have expanded it over the years to other republics, Ukraine, Kazakhstan, and we have also got a small effort underway in Iraq to deal with Iraqi scientists. It is not a huge part of our effort. As I said at the outset, our priority is on materials security, but it is important to try and keep some of these scientists and engineers and technicians who have expertise from migrating to other parts of the world.

Mr. SIMPSON. I think it is an important part of the program because obviously these people are trying to provide for themselves, their families, et cetera, and if they get offered opportunities in other places where we would just as soon not have them, we have to have some alternative, and I think this is an important program and that we do that.

Mr. BLACK. Yes, sir, we do.

Mr. SIMPSON. Let's talk about MOX for a minute. You said it was on schedule and in budget, and I am tempted to ask which schedule and which budget we are talking about. As you know, this committee has had concerns about the cost overruns that have occurred when originally it was $1.8 billion in fiscal year 2001 and it jumped to $4.9 billion. Has the Department addressed the shortcomings in the level of detail in the schedule and cost analysis that GAO identified?

Mr. BLACK. Yes, sir. When I say it is on schedule and within budget, the one I was talking about was the one associated with the construction of the MOX fuel fabrication facility at Savannah River and also the waste solidification building at Savannah River. Those two projects are being built under the rules and regulations that are enshrined in DOE Order 413, which is how we do project management, major capital construction efforts.

I would only suggest that the cost overruns to which you refer from 2001 really have to do with the fact that we had unvalidated costs in the first place, and it would be, I would maintain, unfair to criticize us for having overrun that cost estimate.

Mr. SIMPSON. It was not that the costs were overrun because contractors keep coming back in for a change order and stuff; it is that we put increased demands on it and we actually didn't, I think the original cost estimates were probably insufficient.

Mr. BLACK. Yes, sir.

Mr. SIMPSON. The same with the waste treatment facility at Hanford. We didn't know we had to make it more earthquake proof and a few things like that which added to the cost. Still there was, as you can understand with this committee, when we were originally budgeting $1.9 billion and all of a sudden it turns into $4.9 billion, that causes us just a little bit of heartburn.

Mr. BLACK. Yes, sir.

Mr. SIMPSON. The Government Accountability Office has expressed concerns regarding the oversight of the MOX project, particularly safety and safety controls. Department of Energy headquarters oversight of the project, according to the GAO, needs to be strengthened.

Are you taking actions to strengthen the oversight of the safety and safety control projects at the MOX facility?

Mr. BLACK. Yes, sir. The Chief of Defense Nuclear Safety has participated in an independent project review of the waste solidification building, and we have conducted a number of reviews of the facility. All of the recommendations and the comments resulting from those reviews have been incorporated and resolved.

I would just add the MOX construction project has operated now for 2½ million hours without a day lost to a safety incident. So we are very proud of our safety record in the MOX program right now.

Mr. SIMPSON. I want to talk about the feedstocks for just a minute, and it is kind of a technical question, so I want to read it to you so I don't get it wrong: "Finishing the construction of the MOX facility at Savannah River is only the first of many steps in this program. Plutonium feedstocks are necessary to make MOX fuel and there is a level of uncertainty surrounding the construction and operations preparing MOX feedstocks. Until the pit disassembly and conversion facility is operating, bridge feedstock will be provided by LANL and SRS. Delays in the pit disassembly facility or problems with LANL or SRS bridge materials could create the situation where MOX operates below its capacities."

What are the key milestones in fiscal year 2011 that will serve as indicators first that the feedstock will be available when the MOX plant begins production and, second, that the PDCF is on schedule to produce feedstock in 2021, and what is your risk mitigation plan in the event LANL falls short and the PDCF schedule slips or both, and what studies or data are being used to support the evaluation of alternatives?

Mr. BLACK. You are absolutely correct that we have a phased operation in terms of construction and we have the MOX fuel fabrication facility being built first, and then we need to begin the pit disassembly and conversion facility or the PDC function needs to be put somewhere. And I think you may know that we are exploring the possibility of combining the stand-alone pit disassembly.

Mr. SIMPSON. Which I was also going to ask you about. So if you want to talk about that also.

Mr. BLACK. Okay. I will just say briefly that we are exploring the possibility of combining the missions from those two separate projects in the K reactor at Savannah River because we think, at least the preliminary indications are, we haven't got all the data yet, but the preliminary indications are we might be able to avoid some costs. And these are primarily construction costs, but not exclusively.

If we can make use of an existing shell, then we don't have to build a new building. If we don't have to build a new building, then we don't have to decommission and decontaminate a second building a few years from now when we are done. Using a K reactor might also smooth out some of the transportation costs.

So there are a lot of hidden costs that we might be able to save if we can successfully combine these two projects, and we have created a working group between NNSA and EM to work out some of that information and come to a decision in the next 12 to 18 months. So by the end of fiscal year 2011, by the end of the budget year for which we are requesting funding, we hope that we will have a specific cost and schedule baseline for the new pit disassembly and conversion function, whether it is a standalone facility or combined facility that we can bring to the committee, and it would have good data. Any data that I gave you now would be drawn from thin air.

As to your question about what we are doing to make sure we have feedstock, we do, in fact, have a small amount of feedstock that we are hoping to get out of the ARIES facility at PF–4 at Los Alamos. Ultimately that facility is supposed to produce about 300 kilograms of PU oxide a year. We are not there yet.

And one of the things that we are going to do is make sure that the Los Alamos annual evaluation, the evaluation for the lab, that we give the lab, which results in its performance fee, is dependent in part on how well they produce PU oxide out of that facility. That is one thing.

The other thing is we have to do work with EM to characterize the impurities and some of the non-pit plutonium that is at the Savannah River site so we can know whether it will be readily available for MOX, as you said, in time for the MOX fuel fabrication facility to come on board.

Lastly, one of the things we have done is we have created an inventory of low-enriched uranium that we can use as an incentive to utilities so that if by chance they had contracted to purchase MOX fuel and we weren't able to provide it because of the lack of feedstock, we could at least substitute the LEU, and that is an important incentive to utilities to be willing to use the MOX fuel.

So those are the various mitigation remedies that we have at hand.

Mr. SIMPSON. If I could ask one more question on this, Mr. Chairman, the other one you just mentioned, we don't have any contracts to use the fuel yet, so we are producing something that nobody wants yet or at least hasn't signed a contract to get it. What is the likelihood, I understand the TVA is a potential customer.

Mr. BLACK. Right.

Mr. SIMPSON. Areva is looking at it. Is that accurate or whatever?

Mr. BLACK. Yes, sir.

Mr. SIMPSON. Duke Energy dropped out because of the uncertainty over whether the fuel would be available and a potential shutdown of reactors because of the unavailability of fuel and stuff.

Mr. BLACK. Yes.

Mr. SIMPSON. Where are we in terms of contracting, finding someone that actually wants the fuel?

Mr. BLACK. You are absolutely correct, sir. There is no utility that is currently under firm contract to purchase MOX fuel. But we are making very good progress in our discussions with TVA towards a contract for MOX fuel use in up to five reactors. And if TVA used five reactors, they would go a long way towards solving this problem. They would use almost all of the output that the MOX fuel fabrication facility can provide.

But we are not done with that. We are working with our contractor, MOX Services, to enter a contract with Areva to market the MOX fuel. We are in the business of running nonproliferation programs in other countries. We are not well equipped to be out there beating the pavement and trying to sell fuel, but Areva is and so we are looking to have Areva be a marketer for the MOX fuel.

Mr. SIMPSON. Let me ask you, are there reactors in other countries that are using MOX fuel?

Mr. BLACK. Yes, sir, there certainly are, France, Japan.

Mr. SIMPSON. So it could be used in other countries instead of just utilities in the United States?

Mr. BLACK. I would want to check on that. The only reason that it might not be possible that I can think of offhand is because it is derived from the weapons program and there may be some legal treaty impediment.

Mr. SIMPSON. But part of addressing the contract concerns that some utilities like Duke Energy might have had is the LEU and making sure that they will have it. If, for some reason, the MOX fuel production falls below what is necessary, they will have an alternative?

Mr. BLACK. Yes, sir, exactly.

Mr. SIMPSON. Thank you.

Mr. PASTOR. Lincoln.

Mr. DAVIS. Well, continuing to follow up on that since you brought up the question, Areva, what part of the United States is their plant? Is their plant in the United States, Areva's. Isn't it in France?

Mr. BLACK. Areva is a French company.

Mr. DAVIS. French and German. Do we have companies in the U.S. that are in the process now of being able or working on experiments to be able or potential industry that would be able to provide this that is being manufactured in the U.S.? Are you aware of any of those?

Mr. BLACK. Well, I am aware of the fact that Westinghouse and General Electric and Global Nuclear Fuel are interested in exploring the possibility of marketing the MOX fuel themselves. In fact, we are going to be sitting down with Westinghouse in, I think it

is 2 weeks, to talk about what that company would need to get an NRC license to sell the fuel.

At the moment, Areva is the only company in the United States that has a license to sell MOX fuel. Westinghouse and GE do not, but we will be meeting with Westinghouse in about 2 weeks, sir.

Mr. DAVIS. If you look at all of the reactors in the U.S., there are about 100 that produce energy.

Mr. BLACK. I believe so, sir.

Mr. DAVIS. Most of those were built in 1975 to 1985. Is this the fuel that fuels most of those reactors or are there others—how many reactors would use the MOX fuel, what percent of those 100 basically?

Mr. BLACK. I don't know the answer to that, sir. I do know that we are looking to expand the universe of U.S. nuclear reactors that could use MOX fuel by making some modifications in the MOX fuel fabrication facility so that the fuel could be used in both the pressurized water reactor and the boiling water reactor.

But I would like to take that question, it is kind of outside my ken, but the folks in the Nuclear Energy Office may be able to help us answer that question.

Mr. DAVIS. The interests from some of us who live in small rural areas, and perhaps those who live in urban as well, is we seem to have deindustrialized, to destroy our manufacturing base, and I am interested in what we can do on this committee, and in Science, we can pass science, technology, energy and math, we can place all the dollars we want to go into research and development, but if we don't actually produce that here in this country or manufacture it here then we are going to destroy our economy and our economic opportunities. The reason I am asking the question, I want to see if we can't start looking at America for a change and start doing for ourselves what we have allowed someone else or some corporate structure to go and do deals that basically take the industry, the manufacturing jobs away from the workers in the district that I represent.

In the Global Threat Reduction Initiative this committee has initiated and approved significant new funding to support the goals and objectives of GTRI. NNSA has competitively awarded small business contracts to support the Global Threat Reduction Initiative. Full utilization, in my opinion, of the small contracts will create new jobs and opportunities, which is clearly important in this economy and is the focus of this Congress.

We are committed to making sure that commitments made by GTRI or programs offered to the small business contractors are honored. To date, the program has not been fully utilized with those contracts.

As we consider funding for fiscal year 2011, what is your plan or the Department's plan, and what assurance can you give us that your office will fully utilize those small contracts in the fiscal year 2010 and for the balance of contract period of performance? I understand now that GTRI has award only 5.7 million even though there is the possibility of reaching the level of up to $100 million for the small business contractors who actually bid to do certain types of work and certain types of performances. That seems to me that that is a small percentage.

Someone is doing that work. Small contractors in the district I represent hire folks that will be working and paying for homes and buying automobiles and buying food for their children and clothing. I am concerned that we are not looking at that avenue as a source of production for the basic needs of our country.

Mr. BLACK. Yes, sir. Well, I would like very much to reassure you on that point. We are very happy with the IDIQ contract, and we have made very good use of it. I can't explain the 5.7 million number that you have just quoted to me because my data indicates that we have contracted 20 million dollars worth of tasks under the IDIQ contract so far, and we have made good use of several of the companies that are among the three.

Mr. DAVIS. Basically three, aren't there, that are involved?

Mr. BLACK. Yes, sir. We have held some coordination and planning meetings with representatives of all of those contractor teams as recently as this past month, and the whole purpose was to discuss our needs for the rest of this year and 2011 and to talk about some of the task orders that we will be providing to IDIQ contractors.

Some of the shipments we have got coming up that are mentioned specifically in the budget request are some of the work from South Africa, which is a very large project, and for Mexico, and those would use the IDIQ vehicle.

Yes, sir, we are committed to that vehicle, we like it very much, and I think you will be pleased to see the contract value go up as the years go by.

Mr. DAVIS. We have one of the small contractors in the area I represent. They are going to be excited to hear this good news.

Mr. BLACK. Yes, sir.

Mr. DAVIS. I thank you and I yield back, Mr. Chairman.

Mr. PASTOR. Thank you. Marion.

Mr. BERRY. Thank you, Mr. Chairman, and thank you for being with us today, Mr. Black.

Mr. BLACK. Yes, sir.

Mr. BERRY. The fiscal year 2011 request includes $100 million as the first installment of an agreement with the Russians to dispose of 34 metric tons of surplus weapons grade plutonium. I understand that the agreement is not in place and that the last time we went down this road with the Russians, the Congress provided over $200 million and then the Russians did not follow through and we had to rescind those funds.

Is this time expected to be different?

Mr. BLACK. Yes, sir. I certainly hope it will be different, and I have some confidence that it will be.

The nature of the agreement—and we do have an agreement with Russians by the way. We have a team in Moscow this very week working on that. It has been initialed by both the U.S. and the Russian sides, we have conformed the language. The only thing we have to do is set up a signing ceremony, and we are hopeful that that will be done before the big nuclear security summit the President has announced for the middle of April. So that is number one.

That protocol, that agreement, commits the Russians to pursue their own plutonium disposition program with no more than $400

million of U.S. money. This makes it very different from the agreement we had before. The contribution that the U.S. would make would be capped, it will be doled out according to very specific performance milestones, the last 100 million dollars over 30 years of plutonium disposition. It is a very different situation this time than we had in the early 2000s, and I am hopeful and confident that the Congress will not feel the need to rescind the funds that we are requesting as a down payment this time.

Mr. BERRY. Are they going to dispose of it or are we going to deal with it, bring it over here and deal with it.

Mr. BLACK. They will dispose of their own material in BN–600 and BN–800 reactors, yes, sir, in Russia.

Mr. BERRY. Thank you. I yield back, Mr. Chairman.

Mr. PASTOR. Thank you.

On some of these trips that we have been on with various committees, I think the last one was with Homeland Security, we visited some megaports. And at the time I think of my last visit there were still some megaports that we had not reached agreements with. As defined, megaports, we had Rotterdam and other places that we were working on.

Have we now, to date, signed agreements with all the megaports, and do we have the equipment at those ports?

Mr. BLACK. Our scope of work for the megaports program is 100 ports, and I believe we have 30 or so operational. Eleven more will go operational this year and four more for 2011. So it would be up to about 41, 45 or so by the end of 2011.

Mr. PASTOR. Let me ask the question this way. You may have the information, you may not. What percentage of containers that are coming to the United States will we cover with the ones that we have under agreement or will have under agreement this year, 50 percent of the containers, 10 percent of the containers?

Mr. BLACK. I don't know the answer to that. Let me find out. I think your question is about the distribution of the percentage?

Mr. PASTOR. Well, more or less. If now with the additional 14 that you will have agreement with, is that we now have, if we are inspecting 90 percent of the containers coming to the United States, and that means that the remainder of the 100 are smaller ports.

Mr. BLACK. Right.

Mr. PASTOR. And so then you begin to wonder how important is it today, because some of that equipment is very expensive.

Mr. BLACK. Yes, sir.

Mr. PASTOR. And as I remember, we were supplying most of the equipment. And one of the issues was going to be, at least with some of the ports, that we fronted the money with the expectation that we were going to get some kind of reimbursement and also that any new upgrades would be paid for by the country utilizing the equipment. I remember a conversation like that, and I just wondered where we were at.

But one of the issues that is coming up very quickly, we passed a law, what, about a year ago, 2 years ago, where it said that 100 percent of the containers had to be inspected, and I find it very challenging to meet that. And it is going to cause some major problems in some of the megaports, because when we visited, let's say

Singapore for an example, they said with the 100 percent requirement of having all the containers inspected, the cost would go up and that would cause shipping companies to go to Shanghai rather than Singapore. And they were skeptical of how many containers would be expected in Shanghai as compared in Singapore.

Mr. BLACK. Yes, sir.

Mr. PASTOR. And so have you kept track of that kind of information, of how we are getting to the goal of 100 percent of containers being inspected?

Mr. BLACK. I am sorry, sir. We work very closely with the Department of Homeland Security to coordinate our work in megaports overseas with the Department of Homeland Security's Container Security Initiative and Secure Freight Initiative.

I can't really speak to the 100 percent goal. I just know that we are trying to put radiation detection monitors in as many ports overseas as we can up to the 100 that is our work scope. That only represents about one-seventh of the total number of ports that handle sea containers that come to the United States as it is. But I would like very much to take your question and maybe come back with an answer for you about the percentage of sea container traffic covered by those 100 ports.

Mr. PASTOR. Well, it would be interesting because obviously in cooperation with Homeland Security we are going to have to become realistic whether or not this 100 percent inspection of containers is doable. If we insist on it, what are the consequences, especially with some of these ports that right now have many containers going through them and coming to the United States. And so it is an issue, it is a law that we passed here, so it would be interesting to see what debate that is going to lead to.

I know you equip the ports, but I was wondering if you had any idea to what percentage of the containers were actually being inspected by the equipment.

Mr. BLACK. My colleague indicates that 50 percent of total global sea container traffic is covered by those 100 ports, and that represents 83 percent of U.S. bound sea containers.

Mr. PASTOR. So it is about 80?

Mr. BLACK. It is a sizeable, a nice sizeable percent.

Mr. PASTOR. Okay. Rodney.

Mr. FRELINGHUYSEN. Thank you, very much. The Cooperative Threat Reduction authorization expires in 2012. What does it cover now and would you explain to the committee what impact its expiration, will have on your work in Russia? It not only affects Russia, but it affects what you might characterize today as, shall we say, newly less independent states.

Mr. BLACK. Right. Well, sir, I have to confess I felt fairly well prepared for almost any question, but that one stumps me.

Mr. FRELINGHUYSEN. I wasn't looking to——

Mr. BLACK. I didn't take it that way, but I would like to get the answer and come back to you.

Mr. FRELINGHUYSEN. The basic question is if it isn't reauthorized do we have some discussions under way as to what might follow?

Mr. BLACK. We are working with the Department of Defense on a possible extension of the CTR agreement. The CTR agreement is important because it was the original authorization for our

MPC&A program. But beyond this I really would feel better coming back to you with a fuller and an explanation that I know is accurate about the impact of CTR's extension or nonextension on our work.

Mr. FRELINGHUYSEN. Okay. I don't want to be Russian-centric here. When we are out of Russia in 2013, what specific roles and responsibilities will the Russians take over that we are supporting and paying for today? I know you have talked about some of it.

Mr. BLACK. Right.

Mr. FRELINGHUYSEN. It is the whole issue of how we sustain what we have been investing in here.

Mr. BLACK. Yes, sir. We talked last year about the continuing need to remain in Russia for a little longer, and I indicated at the outset that we have identified some problems. The Russians have identified, have acknowledged some problems. And we are going to come back and talk in closed hearing about what those problems are. But the sorts of things that we are talking about are developing regulations and procedures, on producing spare parts, on training security operators, on maintaining equipment, on doing life-cycle planning for retrofits and the replacement of equipment and the like. These are the sorts of things that are involved in sustaining this investment that we have already made, and those are the sorts of things that we need to work on.

So those are the types of things the Russians will——

Mr. FRELINGHUYSEN. You wouldn't want to characterize your confidence level?

Mr. BLACK. About their ability to——

Mr. FRELINGHUYSEN. Yes.

Mr. BLACK. My confidence level is itself variable. It is better for Ministry of Defense sites than for Rosatom sites.

Mr. FRELINGHUYSEN. What about some of the other countries, the other republics?

I noted your comment about the Ukraine. Of course, if the new President of the Ukraine is now back in the Russian solar system, one would assume he would probably be pretty close to what the Russians would be doing in terms of compliance.

Mr. BLACK. Perhaps, yes. But it is a fairly small number of facilities. It is on the order of 12 to 15 facilities in all of those other republics.

Mr. FRELINGHUYSEN. But any facility of that nature has fissile material, which even the smallest amount in the wrong hands would be extremely worrisome.

Mr. BLACK. Yes, sir. That is part of the reason that our Global Threat Reduction Initiative is interested in removing that material completely from some of those facilities and returning it to Russia and putting it in some of these central storage facilities where we know the security is good.

Mr. FRELINGHUYSEN. Could you make a brief comment on the human capital base? You talked about what you are doing relative to the human capital base, and I assume that means we need to work on it, we need to enhance it.

Mr. BLACK. Yes. As you know from the testimony my boss, the Administrator, gave last week, the entire national security enterprise has suffered over the years from neglect, from insufficient

funding, and that is both financial investment in the facilities and equipment and it is also the fact that young people don't want to go into radiation sciences and they don't want to go work at the national laboratories.

So one of the things that we have undertaken back in 2008 was something called the Next Generation Safeguards Initiative, which is designed to encourage a revitalization of the technologies and facilities, and also encourage young people to go into the program. So, for instance, this past year we sponsored 100 NGSI interns at several of our labs and universities and encouraged them to go into the national lab system.

Mr. FRELINGHUYSEN. How much money was assigned to that?

Mr. BLACK. I would have to get that for you.

Mr. FRELINGHUYSEN. I am picking up on Congressman Simpson. I remember my trip to Russia was many years prior to his. But we were looking after all of those nuclear scientists and all of those closed cities, and who knows how much money we spent. But any ways, these days we need to invest in this human capital base and incentivise young people to be in this line of very interesting and challenging work.

Mr. BLACK. Yes, sir. Exactly.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Mr. RYAN. Thank you, Mr. Chairman. I want to keep on that line or at least that topic and talk a little bit about detection technologies. If you could talk a little bit about that portion of the budget and how that money is being spent and what you see as possible breakthrough technologies, if there are any, and are we doing enough, and then also maybe the status of the integrated university program.

And I will let you answer a portion of those or all of those.

Mr. BLACK. I will take a whack at that.

We have the largest research and development program in the government that is focused on nonproliferation and arms control work. We are very proud of it. Roughly two-thirds of it is on proliferation detection efforts. Some of it is focused on detecting special nuclear materials production processes, what are the signatures that you would get if you were looking at the production of plutonium or highly enriched uranium. Some of it is focused on detecting the movement of special nuclear materials so that we could improve some of our radiation detection monitors in our programs. Some of it is focused on enabling technologies, such as simulations and modeling and algorithms or better readouts or innovative cooling systems that would allow something to be portable. Some of these technologies are focused on making the equipment usable by people who don't have an education or somebody that is not technical or that can be used in a harsh environment, such as a glove box or a hot cell or that could be carried into a remote region and operate for a long time without power being plugged in, for instance.

So there are a lot of enabling technologies that help assist the development of the technologies we need for the proliferation mission.

Another portion, the other third of our R&D program, is focused on nuclear detonation detection. So two-thirds are proliferation de-

tection. That is the part I just told you about. The other third is detonation detection. And there we are talking about the design and the production of the components of the KOUN–2 space satellites for detecting nuclear detonations on the surface of the Earth or in the atmosphere. There is a portion of that work that is also focused on seismic and radionuclide detection and analysis.

So that is our R&D program. That program is coordinated with other parts of the government, DOD, the IC, the Department of Homeland Security, and the like, so that we are investing in research that is complementary and doesn't overlap, and it is also focused on providing better tools for some of our own in-house uses.

As I said earlier, I referred to radiation detection monitors. Some of the improvements in the R&D program may result in better SLD equipment or better safeguards equipment. So that is our R&D program. We are very proud of it.

The Integrated University Program I think is in its second year, and it is about a $15 million program, if I remember right. $10 million of it is allocated to universities for mission-related work, and another $5 million is allocated to universities for what is called non-mission-related work so that they can explore things that are not quite so tied to existing requirements and a little more blue sky-type of work. It is very successful.

Mr. RYAN. How many universities are engaged in the program?

Mr. BLACK. Let me check here. I have the information somewhere, but I can't find it quickly enough without being too disruptive.

But we have the information and I would prefer to take the question and send you a correct and complete answer.

Mr. RYAN. That would be terrific.

Thank you, Mr. Chairman.

Mr. SIMPSON. I appreciate your opening statement when you acknowledge the work that our national labs do in working with you on some of the work. We have got some great assets out there in our national labs, and I think we ought to be using them as much as possible in coordinating all of this work. So I appreciate your recognition of that.

Let me ask about another subject, Moly-99. The Canadian reactor is going to be shut down or has faced some shutdowns. As I understand it, the Canadian Government wants to shut it down. It is the only source of Moly-99. What are we doing to expand that source, and have we looked at nonnuclear or nonreactor production of Moly-99?

I know at Idaho State University, the accelerator center. They are working on that exact thing, that they can produce Moly-99 without a reactor.

Where are we on all of this?

Mr. BLACK. We are keenly aware of this problem of Moly-99 availability, which I know you know is an important medical isotope for all kinds of diagnostic and therapeutic purposes. And as you said, the NRU reactor in Canada and the high flux reactor in the Netherlands, which are major suppliers—there is also one in South Africa—that provide the Moly-99 used by the entire world. Our interest in it is not—yes, we are great humanitarians here, but we are not in this because we are trying to provide medical iso-

topes. We are in this because those reactors produce Moly-99 by virtue of their use of highly enriched uranium, and we are trying to eliminate the use of HEU either in the reactor that produces the isotopes or that use HEU for the targets that create the Moly-99. That is our interest. We are basically trying to eliminate the HEU economy.

So what we have is we have some technology development projects under way. We have given two cooperative agreements with two companies. One is Babcock and Wilcox for a solution reactor technology that would seek a way to produce Moly-99 without using HEU, and another one is to General Electric for a different technology called neutron capture. There are a couple of different promising technologies for which we haven't awarded cooperative agreements yet. But that is the extent of our interest in this.

If we can get an LEU-based Moly-99 production capability established, especially a domestic capability of the sort that Mr. Davis was talking about earlier, we would be much better off in this country. We would have the available medical isotope we need and we would have eliminated the HEU commerce that you have described.

Mr. SIMPSON. There may well be a technology that is available that doesn't require any reactor to create it, and that is acceleration. And they have been working on this and I believe they are quite a ways along. We have been doing some of those bad, bad earmarks with the accelerator center at ISU working on this, and it might not be necessary to have a reactor at all to do it.

So it would be something that I would hope we would all look at because it might make sense.

Mr. BLACK. Yes, sir. Absolutely.

Mr. SIMPSON. I appreciate that. Thank you.

Mr. PASTOR. Mr. Berry.

Mr. BERRY. I have no further questions.

Mr. PASTOR. All right.

In 2010, we were optimistic and I think we put some monies in there for North Korea. Did we spend any of those monies? And if we did, what did we do?

Mr. BLACK. Yes. Well, we did spend some of that money before we were kicked out of the country. As you know, we were there for about 18 months trying to denuclearize some of the facilities at the Yongbyon plant, and we had some success. For instance, you know there is a very common picture of the cooling tower at the research reactor being exploded and dropped, and it is sort of like the icon of our work there. But we did not request funding for DPRK work. In fact, if you look at the fiscal year 2011 budget you will see a reduction in the NA–24 program, the Nonproliferation International Security Program, because we don't think it is very likely that we are going to need additional money to do North Korea work in 2011.

Now, we do have an ongoing capability, because some of the things we need in order to do denuclearization work in North Korea, we have to produce these things or purchase them in advance, glove boxes and the like. So we have a small effort underway. But we have reduced our budget request in fiscal year 2011

precisely because we don't see a need for North Korea work in the near future.

Mr. PASTOR. What is the status of the negotiations? I know we go back and forth and you probably keep up with that better than I do. What is the status, if anything?

Mr. BLACK. Well, we meet with the six-party talks every, I don't know, it seems like every 6 weeks or so and I hate to sound like a cynic but I am afraid I will, and probably for the record sometimes every 6 or 8 weeks it seems like I have read these headlines before.

I would like to take the question if you don't mind, though, and come back with an answer for you if it is not outdated by the time it comes up here.

Mr. FRELINGHUYSEN. Mr. Black, you mentioned North Korea for the committee. Can you talk about threats, future threats, taking a look at North Korea, taking a look at Iran? I know there are some things we can't do in an open hearing. Could you talk briefly about North Korea?

And you may have seen yesterday in the New York Times the article by Bill Broad, "Enriching Uranium Only Gets Easier." I want to ask some questions relative to that article.

Mr. BLACK. Okay. Well, we have a budget line called emerging threats. I think it is in our GTRI program and that happens to be where some of the North Korea funding is located. So you might reasonably suppose that we imagine emerging threats to be—that North Korea is one of them.

Certainly that is a recurring problem and the North Koreans are a wild card. So it is certainly a prominent point of concern for us. So is Iran.

But when I think about emerging threats in general, I think about the problems that we are likely to face as we expand nuclear power around the world, if we have a renaissance of nuclear power. We do believe that nuclear energy is an important part of the future's energy mix. It will help us deal with controlling greenhouse gas emissions and will provide a substantial part of the electric baseload that the world is going to need.

But there is going to be a serious strain on the IAEA's ability to manage that burden because the number of facilities under nuclear safeguards is already expanding, the amount of material is expanding, and the safeguard system is already overburdened and we need a safeguard's system at the International Atomic Energy Agency that is capable of verifying compliance——

Mr. FRELINGHUYSEN. How well do you think they have done already?

Mr. BLACK. Well, I think they have done very well actually, but they are over burdened. They spend a lot of time verifying declarations of countries that have submitted information to the IAEA and the world, and they are not able to spend quite as much time trying to uncover undeclared activities, and that is where I think the biggest threat is in the future. That is the most serious emergent threat, undeclared activities associated with nuclear power in other countries.

Mr. FRELINGHUYSEN. There is speculation that a lot of countries are working on this, not only the new nuclear power plants but sort of working the nuclear bomb equation.

Mr. BLACK. Well, our task is precisely to find a way to let nuclear power expand without also expanding the threat of proliferation of nuclear weapons. We just have to find a way to make the IAEA safeguard's system capable of verifying compliance of declarations and detecting undeclared activities.

It has done a very good job in Iran. It has taken a long time, yes, and we have had a prominent role in helping the IAEA uncover some of those violations in Iran.

Mr. FRELINGHUYSEN. The article I referred to—and I am sure you are familiar with it—sometimes we are dismissive of what Iran is—their capabilities. Sometimes we are dismissive of what we think to be the capabilities of the North Koreans, but certainly there is some, I think, substantial speculation that the Iranians are working in a variety of sites. Some we know about and some we speculate, but we will find out about.

What is your take?

Mr. BLACK. Sir, I spent 21 years in Air Force intelligence, and I had work to do with threat assessments over the years, and I learned early in my military career and all the way up to the end and even now, that it is very dangerous to be dismissive of other countries for whatever reason. We don't want to dismiss their capabilities because they do things differently or we think something about their religion or their race. It is very, very dangerous, and so we don't want to be dismissive of anybody's capabilities.

We take that very seriously ourselves, and I think the Nation has done a pretty good job at that.

Mr. Broad referred to the problem of enrichment as a particular source of threat. I think that had to do with the fact that we used to be mostly concerned about reprocessing and the fact that countries would make use of plutonium that they reprocessed.

But over the years what has happened, and this is many years, a couple of decades, is we have found centrifuge technology increasingly prominent. Centrifuges are more capable. A.Q. Khan created a black network of illicit trafficking involving a lot of countries——

Mr. FRELINGHUYSEN. We still don't know the full extent that he did.

Mr. BLACK. No, sir. We don't know the full extent because we haven't had access to him. So we don't know all of the ins and outs of his network.

But the point here is enrichment technology is something we have to get a handle on, not just reprocessing. That is part of the reason that this administration and the previous administration had a focus on what is called E&R technologies, enrichment and reprocessing technologies. It is a serious threat, and we are aware of it, and we are doing the best we can to improve export controls. We are doing the best we can with the Nuclear Suppliers Group to try and restrict the trade and the components of centrifuges and the like.

Mr. FRELINGHUYSEN. I think we are highly respectful of, obviously, your career in this area, but once they have developed it then we are in real trouble.

Mr. BLACK. Yes, sir. Absolutely.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Mr. RYAN. I don't know if you touched upon Iraq at all and what your role still is there, if any. If you could give us a quick minute or two on that.

Mr. BLACK. It will be quick because it is not a very large role in Iraq. We have engaged in a couple of operations in Iraq to recover material soon after the initial invasion of Iraq. We went into the Tuwaitha complex and removed a large amount of material and then later on, a couple of years later, we did a second operation to remove yellowcake and some radiological sources.

That was really the extent of our work in Iraq. In addition to that, though, I mentioned—perhaps you weren't in yet, sir—we have engaged about 200 scientists and technicians in Iraq on some small-scale R&D projects to make sure that they don't take their expertise to other countries and develop weapons of mass destruction there. But it is fairly small.

Mr. PASTOR. Thank you very much, Mr. Black.

And this will conclude the hearing.

QUESTIONS FOR THE RECORD

ENERGY AND WATER DEVELOPMENT SUBCOMMITTEE
HOUSE COMMITTEE ON APPROPRIATIONS

DEPARTMENT OF ENERGY: OFFICE OF NUCLEAR NONPROLIFERATION

BUDGET HEARING

MARCH 10, 2010

QUESTION 1

EXECUTING THE FUNDING INCREASE

Chairman Pastor and Ranking Member Frelinghuysen. The request for nuclear nonproliferation is $2,687 million, $550 million over the fiscal year 2010 enacted level. This committee has supported these programs for many years. Still, we have concerns regarding the ability of Defense Nuclear Nonproliferation to execute this funding increase in one year. Can you assure the Committee you could execute this funding without carrying large unobligated, uncosted balances into fiscal year 2012?

Mr. Black. The Fiscal Year 2011 budget request for Defense Nuclear Nonproliferation provides for further DOE support to the President's historic nonproliferation, nuclear security and arms control agenda. The President has challenged the United States and the international community to accelerate our material security efforts over the next four years to reduce the risk of nuclear terrorism. The Fiscal Year 2011 budget request reflects the initial investment we feel is necessary and appropriate to meet this challenge. The April 2010 Washington Nuclear Security Summit has already resulted in nations committing to a work plan to secure and eliminate additional fissile material.

A significant portion of this increase is the shift of funding for the Pit Disassembly and Conversion (PDC) project to Defense Nuclear Nonproliferation's Fissile Materials Disposition program (instead of the Weapons Activities Appropriation). This aligns management and funding responsibilities for the interrelated surplus plutonium disposition activities, in support of U.S. nonproliferation and arms control objectives, under a single appropriation. We have worked hard over the years to make expeditious use of the resources this Committee has seen fit to provide. We are fairly confident in our ability to get this large amount of work done and make effective use of the increased funds we are requesting this year because we have put in place contracts and procedures that streamline the complicated process involved in contracting for work overseas, where our work is typically done. Second, we have decreased our federal personnel vacancy rate from 17% down to about 5%. Finally we have steadily reduced our end of year uncommitted balances every year for the past five years. For FY 2009, the two programs at the heart of our four year plan in support of the President's effort (i.e., GTRI and INMP&C), were under 9% uncommitted.

Specifically, the International Nuclear Material Protection and Control (INMP&C) program is requesting an $18M increase in its FY11 budget over its FY10 appropriation. Over the last four fiscal years, INMP&C's has steadily reduced its uncommitted balances to 7 percent in FY2009. When the costing and commitment patterns are taken into account for INMP&C, we are confident that the requested appropriation for FY 2011 will be expeditiously obligated and committed.

The FY 2011 budget request also increases the budget for the Global Threat Reduction Initiative (GTRI). If appropriated, the funds would be used in FY2011 with minimal uncommitted carryover. GTRI has a proven track record each and every fiscal year of reducing its uncommitted balances despite significant and continued growth. In FY09, GTRI achieved its lowest uncommitted balance of 8.5%. GTRI fully intends to achieve a similar uncommitted balance in FY2010.

Chairman Pastor and Ranking Member Frelinghuysen. What are the biggest challenges you see in executing the increase contained in the request?

Mr. Black. In general, since all of our work is cooperative in nature, our biggest challenge to executing the increase contained in the FY2011 request is reaching the agreements needed with our international partners. We have all the agreements we need to complete the work for our Material Protection, Control and Accounting program, Second Line of Defense Core Program and Megaports Initiatives, and for our Global Threat Reduction program, we have eight of the ten agreements needed. We were rightly optimistic that the Nuclear Security Summit would help us win some important agreements and we believe that subsequent interactions with relevant governments will produce the final agreements we need. In the case of the Russian plutonium disposition program, we need the amended Plutonium Management and Disposition Agreement (PMDA) to enter into force and the monitoring and inspection provisions to take effect before the $100 million we are requesting can be spent. We have told the Russians on numerous occasions that we cannot provide the majority of the $400 million contribution for Russian disposition until Russia enters the amended PMDA into force and the monitoring and inspection provisions take effect.

Chairman Pastor and Ranking Member Frelinghuysen. What management measures are you taking to ensure this funding is spent effectively and efficiently?

Mr. Black. We have strong internal management controls in our nonproliferation programs. First of all, we establish quarterly, annual, and long-term performance goals that align with and cascade down from higher-level strategic plans and U.S. national security policy policies. So the things we attempt to do are grounded in fundamental goals of the U.S. Government. Second, all our foreign activities are coordinated with our colleagues in the State Department, Defense Department, and other agencies of the U.S. Government, so we are collectively doing all the things that need to be done, and we are able to avoid duplicating efforts. Third, we submit all our programs to a variety of periodic reviews by several levels of senior leadership, and we continually re-evaluate the cost-benefit ratio of our planned expenditures with the threat reduction benefit. Fourth, our program managers conduct detailed technical reviews of their program, project, and contractor performance, and all programs maintain a current listing of documentation in support of reported results, as well as documented internal control processes for ensuring the accuracy of reported results. Fifth, our programs make maximum use of information technology to provide valuable management tools, such as sophisticated project management information systems, which present financial and performance information in near real-time.

QUESTION 2

EXECUTING THE FUNDING INCREASE

GLOBAL NUCLEAR LOCKDOWN IN FOUR YEARS

Chairman Pastor and Ranking Member Frelinghuysen. The President announced an initiative to secure all vulnerable nuclear material worldwide in four years led by the Global Threat Reduction Initiative (GTRI). The request for GTRI is $559 million, $225 million above fiscal year 2010. How did GTRI determine the scope of this initiative?

What criteria qualified material at sites around the world as vulnerable?

Mr. Black. The FY2011 budget provides for the acceleration and expansion of threat reduction efforts, including initial efforts to remove over 1,650 kilograms of vulnerable nuclear material, and converting an additional seven research reactors to the use of low enriched uranium fuel.

GTRI sized its proposal to secure vulnerable nuclear material in FY2011 by prioritizing known quantities of highly enriched uranium (HEU) and plutonium, based on a variety of criteria, including the amount and attractiveness of material at each site, the existing site security conditions, the country threat environment, and the location of the material, among others.

At a minimum, material is considered "vulnerable" if its physical protection does not meet international guidelines set forth by the International Atomic Energy Agency in "The Physical Protection of Nuclear Material and Nuclear Facilities" (INFCIRC/225/Rev.4). However, in cases where the threat environment justifies more robust security measures, we may consider material vulnerable even if the site meets international guidelines. No physical protection system is perfect. The only way to completely eliminate the risk that material will be stolen is to eliminate the material entirely. Thus, GTRI has made nuclear material removal a priority and the rate of acceleration in the material removal portion of the program is considerably greater than the increase in other parts of the program. To date, 18 countries have now been completely cleaned out of all HEU.

GTRI's prioritization process for its HEU and plutonium removal programs involves a systematic method that ranks projects and assigns resources based on the relative risk of the material and the expected risk reduction resulting from the removal.

The prioritization criteria include the following factors:

- Nuclear material attractiveness level, which relates to the consequences if that material type and quantity were to be used in an improvised nuclear device.
- Internal Site Vulnerability, which includes such factors as the evaluation of site guard force and security systems.
- Country-level threat environment, which is based on the presence of a terrorist threat, known terrorist attacks, and incidents of nuclear/radiological theft and smuggling.

- Proximity to strategic interests, which relates to the distance of the site from U.S. embassies, military bases, and other interests.

All of these factors are considered, with the greatest weight given to the material attractiveness level, to determine the priority level.

Chairman Pastor and Ranking Member Frelinghuysen. What do you consider the start and finish dates of this initiative?

Mr. Black. The President announced his intention to ensure that terrorists never acquire a nuclear weapon in his Prague speech in April 2009. He said at the time that this threat was "the most immediate and extreme threat to global security . . . that there is unsecured nuclear material across the globe . . . . [and that] we must act with a sense of purpose without delay." At that time, he announced "a new international effort to secure all vulnerable nuclear material around the world within four years . . . that "we [would] set new standards, expand our cooperation with Russia, pursue new partnerships to lock down these sensitive materials . . . build on our efforts to break up black markets, detect and intercept materials in transit, and use financial tools to disrupt this dangerous trade" And he said that "we should start by having a Global Summit on Nuclear Security that the United States will host within the next year." We have taken the President's words to heart and we have been working hard to accelerate and expand our efforts in all the areas the President identified. We have produced a work plan that spans four years, and that we feel focuses on the most serious nuclear vulnerabilities. We have shared that classified work plan with your staff, and we are confident, assuming the continued support of Congress, and of this Committee in particular, that we will be successful in completing our appropriate part of the President's plan.

Chairman Pastor and Ranking Member Frelinghuysen. Are agreements currently in place with all of the countries you plan to partner with in fiscal year 2011?

Mr. Black. We have all the agreements we need to complete the work for our Material Protection, Control and Accounting program, Second Line of Defense Core Program and Megaports Initiatives. NNSA's Global Threat Reduction Initiative has eight out of ten agreements in place to implement its planned FY2011 work scope as listed below. Some examples of that workscope include:

- Removal of U.S.-origin HEU fuel in South Africa
- Removal of Russian-origin HEU fuel in Serbia
- Downblending of Russian-origin fresh bulk HEU in Kazakhstan
- Removal of Russian-origin HEU fresh (44 kilograms) and removal of spent fuel (41 kilograms) in Belarus
- Reactor conversion and removal of U.S.-origin HEU fresh and spent fuel in Mexico

During the Nuclear Security Summit, Ukraine decided to get rid of all of its stocks of highly enriched uranium by the time of the next Nuclear Security Summit in 2012. GTRI still needs agreement from South Africa for two shipments. However, regarding the South African-origin HEU spent fuel, during the Nuclear Security Summit, South Africa agreed to establish a joint

technical working group to develop the cost and technical modalities for eliminating the South African-origin HEU spent fuel. Regarding the South African-origin HEU fresh fuel, South African officials have announced that in July 2010 they will be producing Moly-99 from LEU instead of HEU. As a result, South Africa will no longer need its HEU inventory for Moly-99 production, and we believe that this will open the door for GTRI to obtain agreement to remove this HEU.

QUESTION 3

EXECUTING THE FUNDING INCREASE

GTRI EXECUTION PLAN

Chairman Pastor and Ranking Member Frelinghuysen. Please provide for the record a detailed execution plan for the fiscal year 2011 request for GTRI. This plan should include: the countries where work is proposed and whether agreements are in place; the staffing requirements in terms of full-time equivalents; additional hires or skill sets required; descriptions of actions taken to ensure effective and efficient use of resources-e.g. oversight; comparisons of the request to estimated current year execution or fiscal year 2009 execution; and an estimated obligation and expenditure schedule by quarter for fiscal year 2011.

The out-year plans for GTRI include several specific goals, listed below. Please submit for the record an update on where the NNSA currently stands in achieving these goals and the funding levels required to meet them, for each goal.

GOAL: Convert or verify the shutdown of 129 (65%) of the 200 highly-enriched uranium burning reactors at civilian sites

Mr. Black. To date, GTRI has converted or verified the shutdown of a cumulative 71 reactors. By 2015, we are targeting the conversion or shutdown of 129 (65%) of the 200 highly-enriched uranium burning reactors at civilian sites. The budget that supports these goals is as follows:

- FY2011: $119 million
- FY2012: $176 million
- FY2013: $210 million
- FY2014: $245 million
- FY2015: $293 million

In FY2011, GTRI will convert or verify as shutdown an additional 7 HEU research reactors, bringing the cumulative total to 78. The conversions identified for FY2011 include reactors in Poland and China among others.

Chairman Pastor and Ranking Member Frelinghuysen. GOAL: Remove 4,597 kilograms (99%) of the approximately 4,604 kilograms of nuclear materials at civilian sites

Mr. Black. To date, GTRI has removed a cumulative total of 2,692 kilograms of HEU and plutonium. By 2015, we are targeting the removal of 4,597 kilograms (over 99%) of the approximately 4,604 kilograms of nuclear materials at civilian sites. We will have all 4,604 kilograms completed by 2016. The Nuclear and Radiological Material Removal budget supporting this effort is:

- FY2011: $356 million
- FY2012: $210 million
- FY2013: $175 million
- FY2014: $347 million
- FY2015: $317 million

In FY2011, GTRI will remove an additional 530 kilograms of HEU and plutonium from countries such as South Africa, Mexico, Serbia and Ukraine.

Chairman Pastor and Ranking Member Frelinghuysen. GOAL: Protect 3,946 (79%) of the 5,000 buildings with high-priority nuclear and radiological materials.

Mr. Black. To date, GTRI has secured a cumulative total of 771 buildings with high-priority nuclear and radiological material. By 2015, we are targeting the protection of 3,946 (79%) of the 5,000 buildings with high-priority nuclear and radiological materials. We will have approximately 5,000 buildings completed by 2019. The Nuclear and Radiological Material Protection budget that supports that is as follows:

- FY2011: $84 million
- FY2012: $214 million
- FY2013: $275 million
- FY2014: $395 million
- FY2015: $446 million

Regarding Agreements, with 6 months left before the start of FY2011, GTRI already has agreements/contracts in place for the vast majority of work in FY2011. For example 8 out of the 10 agreements are in place for nuclear removal efforts.

Regarding staffing, GTRI currently has 33 FTEs on board and we are in the process of hiring an additional 3 FTEs for a total of 36 FTES.

Regarding an estimated obligations and expenditures schedule by quarter for FY2011:

- Q1 – 85% obligated and 35% expended and/or committed
- Q2 – 86% obligated and 64% expended and/or committed
- Q3 – 95% obligated and 70% expended and/or committed
- Q4 – 100% obligated and 93% expended and/or committed

QUESTION 4

EXECUTING THE FUNDING INCREASE

DISPOSITION OF GTRI-REMOVED MATERIAL

Chairman Pastor and Ranking Member Frelinghuysen. Nuclear material brought back to the United States will need a disposition pathway. Where will you be storing this material?

Are all of the authorities in place to store and dispose of nuclear material removed from abroad in the United States? Does Defense Nuclear Nonproliferation contribute to the storage costs of the removed material?

Mr. Black. Nuclear material brought to the United States goes to one of three locations for storage until it is dispositioned. HEU fresh fuel is sent to the Y-12 National Security Complex, where it can be downblended and converted to civilian power reactor fuel. HEU spent fuel is sent to the Savannah River Site (SRS) for storage in L-Basin or to Idaho National Laboratory until it can be dispositioned along with domestic spent fuel by DOE's Office of Environmental Management.

All authorities are in place to store HEU materials from abroad in the United States. We are currently in the process of completing an Environmental Assessment to analyze the potential health and environmental impact of accepting a limited amount of separated plutonium at the Savannah River Site as well.

The Office of Defense Nuclear Nonproliferation (DNN) and many of the countries that send HEU to Y-12 and Savannah River Site contribute to the storage costs of the material sent there. If the material is coming from a high-income-economy country (as defined by the World Bank), then that country is asked to pay for management and disposition costs. In addition, DNN funded the Office of Environmental Management (EM) to evaluate the re-racking of L-Basin for additional capacity to store additional fuel assemblies.

QUESTION 5

EXECUTING THE FUNDING INCREASE

RUSSIAN PLUTONIUM DISPOSITION

Chairman Pastor and Ranking Member Frelinghuysen. The construction of the MOX facility to dispose of surplus U.S. weapons grade plutonium is well underway in Savannah River, South Carolina. The Russians, meanwhile, have proposed an approach using fast reactors to burn their plutonium. The fiscal year 2011 request of $113 million includes $100 million as the first installment of a $400 million contribution to the Russian program over four years. The last time we went down this path with the Russians the Congress provided over $200 million for plutonium disposition that was never spent for this purpose when the Russians did not follow through. Why do we expect different results this time around?

Mr. Black. We expect different results this time because the Russian position has evolved in a number of important ways. Fundamentally, the Russian government is now politically and financially committed to its plutonium disposition program. Russia and the United States have now agreed on a revised Russian plutonium disposition program that is consistent with Russia's national energy strategy. Russian Foreign Minister Sergei Lavrov has publicly stated that Russia will spend approximately $2.5 billion of its own money on disposing of surplus plutonium while the United States has committed to provide up to a hard cap of $400 million, subject to future appropriations. The revised Russian disposition program has been codified in a Protocol, signed by Secretary Clinton and Foreign Minister Lavrov on April 13, 2010, which amends the 2000 Plutonium Management Disposition Agreement and is provisionally applied until it enters into force, which is expected later this year.

Chairman Pastor and Ranking Member Frelinghuysen. When will the proposed agreement be reached with Russia?

Mr. Black. The Protocol to amend the Plutonium Management and Disposition Agreement was officially signed on April 13th by Secretary Clinton and Russian Foreign Minister Lavrov on the margins of the President's Nuclear Security Summit and is provisionally applied until it enters into force, which is expected later this year.

Chairman Pastor and Ranking Member Frelinghuysen. What is your best estimate on when this funding will be costed or spent?

Mr. Black. If Congress appropriates $113 million as requested in fiscal year 2011, the Department plans to commit this entire amount to contracts within fiscal year 2011 and to have all the funds costed or spent by the end of fiscal year 2012.

QUESTION 6

EXECUTING THE FUNDING INCREASE

RUSSIAN CONTRIBUTION

Chairman Pastor and Ranking Member Frelinghuysen. The budget request for the Russian Plutonium Disposition Program notes that $400 million is committed for support by the United States, and the Russians and other countries would be responsible for the balance…perhaps as much as $2 billion.

In what years would the $2 billion be committed, and for what?

Mr. Black. The Russian government does not make detailed budget information publicly available. So, I cannot itemize the costs of all of Russia's activities related to its plutonium disposition program by activity and year. However, as noted, Russian Foreign Minister Sergei

Lavrov publicly stated in mid-April of this year that Russia will spend approximately $2.5 billion to dispose of its own surplus plutonium.

Chairman Pastor and Ranking Member Frelinghuysen. Are there any other countries which have committed funds, or which you expect will commit funds? If so, how much, when, and for what?

Mr. Black. At this time, no other country has committed funds for this particular project. In the Protocol, however, the Department of Energy commits to work with Rosatom to seek additional donor funding from other countries for the Russian disposition program. However, the amended agreement stipulates that Russia's program will not be contingent on securing any such additional funding.

QUESTION 7

FUTURE OUTLOOK

THREATS TO THE FUTURE

Chairman Pastor and Ranking Member Frelinghuysen. You have presented an impressive budget request to address threats as we now expect them to be. Obviously you are limited in terms of what can be said in an open hearing, but what threats do you see coming in the future, and how is the Office of Defense Nuclear Nonproliferation working to be ready to meet them?

Mr. Black. President Obama, in his recent Nuclear Posture Review (NPR) stated that "today's most immediate and extreme danger is nuclear terrorism," and the NPR characterizes it as one of the 21st century nuclear dangers that pose "grave and growing threats." It doesn't fall to the Office of Defense Nuclear Nonproliferation, either by authority, practice, expertise or resources, to deal with all the threats facing this Nation, but we have developed the capabilities needed to mitigate the threats posed by nuclear and radiological materials. Our nonproliferation programs are working diligently to implement key elements of President Obama's strategy to secure all nuclear and radiological materials worldwide within four years, to design and implement arms control agreements, to support the International Atomic Energy Agency and especially its system of nuclear safeguards, to strengthen export controls in this country and around the world, to safely and securely dispose of 68 tons of U.S. and Russian plutonium, and to develop the advanced technologies needed to undergird all of these efforts. The Office of Defense Nuclear Nonproliferation is uniquely equipped and situated to perform these functions in support of the President's arms control and nonproliferation agenda.

QUESTION 8

FUTURE OUTLOOK

CIVIL NUCLEAR POWER EXPANSION AND NONPROLIFERATION

Chairman Pastor and Ranking Member Frelinghuysen. Nuclear power is continuing to expand globally. We are expecting to see increases both in the number of plants and the number of countries with civilian nuclear plants.

What nonproliferation challenges will this pose?

Mr. Black. In the past few years, many nations have announced plans to build scores of new nuclear reactors. Although nuclear power plants themselves pose little proliferation risk, the increased demand for nuclear fuel could lead to proliferation risks if enrichment and reprocessing (ENR) capabilities expand in an unchecked manner. Additionally, the global nuclear expansion will increase the number of nuclear facilities that need to be under international safeguards and the number of countries engaged in nuclear activities, which will challenge the IAEA's already-stretched safeguards system. Additionally, it will require data integration from a wide range of information sources, not only to detect diversion from declared stocks of nuclear material, but also to provide assurances to the world about the absence of undeclared nuclear materials and activities.

Chairman Pastor and Ranking Member Frelinghuysen. What is the Office of Defense Nuclear Nonproliferation's role in helping to meet those challenges?

Mr. Black. To meet the expected expansion of global nuclear energy demand, President Obama has called for a new framework for civil nuclear cooperation that would ensure that countries enjoy access to nuclear energy for peaceful purposes while minimizing the risks of proliferation. The Departments of Energy and State play important roles in the development of this new civil nuclear framework, which may include exploring international fuel service arrangements. The United States was a moving force behind the establishment of the first nuclear fuel bank – capable of providing last-resort supply in the event of a disruption to states in good nonproliferation standing. The Office of Defense Nuclear Nonproliferation has contributed nearly $50M to the International Atomic Energy Agency for an international nuclear fuel bank and our government is engaging our foreign counterparts so that an IAEA fuel bank can be established. The Office of Defense Nuclear Nonproliferation is also downblending 17.4 MT of highly enriched uranium for a U.S. nuclear fuel bank. In addition, our Next Generation Safeguards Initiative (NGSI) seeks to further the peaceful development of nuclear energy by strengthening international safeguards, coordinating U.S. safeguards technology programs, and revitalizing the U.S. safeguards technology and human capital base.

Chairman Pastor and Ranking Member Frelinghuysen. What do you expect to be the major areas of concern—e.g. fuel supply, reprocessing, and/or uranium enrichment?

Mr. Black. Since the United States is supporting several fuel assurance initiatives, we do not see the supply of nuclear fuel as a future concern. However, as fuel cycle technology spreads, so too can dual-use technologies, such as enrichment and reprocessing (ENR) technology, which have obvious potential military applications. The dual-use nature of ENR technology makes it important that nations contemplating the peaceful use of nuclear energy have options that will not require them to reprocess or enrich their own fuel.

QUESTION 9

FUTURE OUTLOOK

GLOBAL ENGAGEMENT AND COOPERATION PROGRAM

Chairman Pastor and Ranking Member Frelinghuysen. The Global Engagement and Cooperation program works with other countries to ensure that the development of their nuclear infrastructure meets international safeguards, security, and nonproliferation considerations. Does this work include civilian nuclear power plants?

Mr. Black. The Office of Global Security Engagement and Cooperation (GSEC) focuses on safeguards issues at civilian nuclear power facilities in Argentina, Brazil, Japan, South Korea, Armenia, Ukraine, Euratom member states, South Africa, China, and soon Kazakhstan. GSEC also collaborates with countries in the Middle East, North Africa, and Southeast Asia that are planning to develop civilian nuclear power programs, and helps them establish the infrastructure necessary for safe, secure, and peaceful nuclear power program.

Chairman Pastor and Ranking Member Frelinghuysen. All reasonable predictions of the international energy sector include a significant increase in the number of nuclear plants worldwide. Why does funding for this particular program stay relatively level through fiscal year 2015, according to your projections?

Mr. Black. The Office of Global Security Engagement and Cooperation has sufficient resources to meet the projected proliferation and security challenges posed by the growth of nuclear power. This type of work does not increase in a way that is proportional to the number of nuclear plants.

Chairman Pastor and Ranking Member Frelinghuysen. What particular challenges do you see for ensuring that safeguards at civilian sites are robust and comprehensive?

Mr. Black. There are three main challenges to ensuring robust and comprehensive safeguards at civilian sites internationally: The lack of priority given to IAEA safeguards by plant operators; the relatively limited number of personnel dedicated to overseeing effective safeguards implementation at nuclear facilities; and the lack of national laws and facility-specific regulations that would otherwise ensure strong regulatory oversight and control.

Chairman Pastor and Ranking Member Frelinghuysen. Are there any particular countries of concern?

Mr. Black. In general, the systemic challenges I've identified tend to be more prevalent in countries where national laws and regulatory enforcement are weak. It's a phenomenon that may grow to be a more serious concern in North Africa and the Middle East, if the trend toward nuclear power accelerates in those regions.

Chairman Pastor and Ranking Member Frelinghuysen. Are the IAEA standards and technical capacity strong enough? What about their enforcement?

Mr. Black. We believe that the IAEA, as a technical organization, possesses sufficient technical capacity to fulfill its mission. The IAEA currently is working to publish a new 5th revision to INFCIRC 225 that will call for stronger nuclear security standards. With respect to enforcement, however, the IAEA can only report on its findings to its Board of Governors, which then has the option of referring cases of suspected or documented noncompliance to the UN Security Council for further action. It has no enforcement capability of its own.

QUESTION 10

NONPROLIFERATION PLANNING AND PRIORITIES

CONSTRUCTION PROJECTS DISPLACING OVERSEAS NONPROLIFERATION WORK

Chairman Pastor and Ranking Member Frelinghuysen. The Fissile Materials Disposition (FMD) request is $1 billion or 38% of the overall budget. While $113 million of the FMD request is for Russian surplus plutonium disposition, the bulk of the FMD request is for three domestic construction projects—Mixed Oxide Fuel Fabrication facility, Waste Solidification Building, and the Pit Disassembly and Conversion facility. Even with major increases in overseas programs, are you concerned that these domestic construction projects encumber large amounts of your resources while, for example, additional border security or research and development could be performed with additional resources?

Mr. Black. No, we believe our priorities are in order. With few exceptions, we're satisfied that the range of activities we have been asked to do, whether it is domestic construction of facilities to dispose of tons of plutonium or overseas operations to prevent vulnerable nuclear materials from falling into the hands of terrorists, makes sense in the grand scheme of supporting U.S. national security strategy. The funds dedicated to the work on the Mixed Oxide Fuel Fabrication Facility, Waste Solidification Building and Pit Disassembly and Conversion project will allow the U.S. to permanently dispose of at least 34 metric tons of weapon-grade plutonium by burning this material in civilian reactors, and it plays an important role in encouraging Russia to do the same with a like amount of its own plutonium.

QUESTION 11

NONPROLIFERATION PLANNING AND PRIORITIES

PRIORITIZING INVESTMENTS IN NONPROLIFERATION

Chairman Pastor and Ranking Member Frelinghuysen. The Committee directed a report in fiscal year 2010 outlining how Defense Nuclear Nonproliferation prioritizes its investments

across all of the nonproliferation programs. Since the Committee has not received this report, can you describe how you prioritize your investments? For example:

How do you determine whether a marginal dollar is better spent in research and development or overseas nonproliferation work?

Is installing nuclear detection at a high-risk border security crossing a higher priority than securing nuclear material in a stable, developed country?

Mr. Black. This report has been submitted to the Committee on April 8, 2010. In general, the Office of Defense Nuclear Nonproliferation (DNN) strives to secure the most vulnerable nuclear materials at their site of origin. However, as there are examples of material being stolen from facilities, DNN establishes multiple lines of defense at at-risk border crossings, as well as choke points such as major sea and air ports, in order to detect the possible movement of material. To further support this effort, we try to increase the capability of other countries to detect, identify and interdict these materials and related technologies, and to increase the capability of the entire nonproliferation regime. It's a balanced approach to a complex, worldwide problem. In addition, DNN places high emphasis on the permanent disposition of material into a less attractive state, preferably one that cannot be used to create a nuclear or radiological weapon. Additional details regarding some of the criteria we use to determine the optimal use of available resources are provided in the document on how we evaluate risk and prioritize our efforts.

QUESTION 12

FUNDING CARRYOVER

MANAGEMENT CORRECTIVE ACTIONS

Chairman Pastor and Ranking Member Frelinghuysen. In the past, many overseas programs in Defense Nuclear Nonproliferation have carried large balances of unobligated, uncosted funds from year to year. What corrective actions have you taken to reduce these balances?

Mr. Black. Uncommitted balances have been an issue of concern within the DNN program for many years. However, since 2005, DNN has reduced uncommitted carryover from approximately 15.5% five years ago to about 11% last year. In 2009, the two programs at the heart of our four year effort to secure vulnerable nuclear material around the world (i.e., GTRI and INMP&C), came in under 9 percent uncommitted. A number of different processes have been put in place to help achieve this change, including adjustments in contracting methods, oversight procedures, and stronger efforts during the initial budget planning step to ensure the most efficient and effective use of each dollar.

Chairman Pastor and Ranking Member Frelinghuysen. Please provide to the Committee the latest cost and commitments report.

Mr. Black. The Department will provide the midyear (March) report shortly.

QUESTION 13

FUNDING CARRYOVER

FUNDING COMMITMENTS

Chairman Pastor and Ranking Member Frelinghuysen. Defense Nuclear Nonproliferation uses a category of "commitments" to describe funds that have not been spent but are intended for specific projects in another country. We would appreciate some help to understand this category a little better. What are the criteria you employ to categorize funding as committed?

In other words, for funding to be considered committed: 1) is it that you have identified a partner country and project but are working to get an agreement in place; 2) an agreement is in place; 3) a work scope has been developed; or 4) funds are not costed because they are spent out slowly as work is completed in a partner country?

If it is a combination of the above, how is it possible to assure the Subcommittee the committed funding will be spent in a timely fashion and you are addressing the most critical activities?

Mr. Black. In its simplest form a commitment by DNN standards means that the U.S. Government has entered into a signed contractual agreement with another entity to perform a specified work scope within a specified timeframe. 'Commitment' of a particular amount means that the funds are encumbered by a signed contract to expend the funds to perform work. Due to the complexity of the work, our desire to exercise diligent oversight, and the fact that this work often is performed by foreign contractors in their own country, funds can take 18 to 24 months to be costed. DNN managers work tirelessly to ensure that the work is performed quickly but efficiently, and we are not willing to approve the final expenditure of U.S. funds until we are satisfied that the work has been completed according to all required specifications.

QUESTION 14

FISSILE MATERIALS DISPOSITION

FEEDSTOCK FOR THE MIXED-OXIDE FUEL FABRICATION (MOX) FACILITY

Chairman Pastor and Ranking Member Frelinghuysen. Finishing the construction of the MOX facility at the Savannah River Site (SRS) is only the first of many steps in this program.

Plutonium feedstock is necessary to make the MOX fuel and there is a level of uncertainty surrounding the construction and operations preparing MOX feedstock.

Until the Pit Disassembly and Conversion Facility (PDCF) is operating, "bridge" feedstock will be provided by Los Alamos National Laboratory (LANL) and SRS. Delays in PDCF or problems with the LANL and SRS "bridge" material could create the situation where MOX operates below its capacity. What are the key milestones in fiscal year 2011 that will serve as indicators, first, that the feedstock will be available when the MOX plant begins production and, second, that PDCF is on schedule to produce feedstock in 2021?

Mr. Black. Key milestones include: LANL completing its goal of converting 50 kilograms (kg) of plutonium metal to oxide by the end of FY2010, and a cumulative 275 kg by the end of FY2011; and completion of the PDCF CD-1 (i.e., selecting an option and developing the cost and schedule range by December 2010).

Chairman Pastor and Ranking Member Frelinghuysen. What is your risk mitigation plan in the event LANL falls short, the PDCF schedule slips, or both?

Mr. Black. To mitigate risk associated with LANL and PDCF production, NNSA is evaluating: 1) possible acceptance of additional non-pit material currently stored in K-Area at the Savannah River Site; 2) working with nuclear utilities interested in irradiating MOX fuel to adjust the quantity and timing of initial fuel deliveries; and 3) acceleration of selected processes in the planned Pit Disassembly and Conversion project to produce earlier feedstock for the MOX facility.

Chairman Pastor and Ranking Member Frelinghuysen. What studies or data are being used to support the evaluation of alternatives?

Mr. Black. One of the most important sets of data being used to evaluate the alternatives is information on MOX feed data, which NNSA updates on a regular basis. The data include up-to-date information from prospective utilities and the latest projected dates for availability of feed from LANL, the Office of Environmental Management's Plutonium Preparation Project, and PDCF.

QUESTION 15

FISSILE MATERIALS DISPOSITION

ARIES FACILITY EXPANSION

Chairman Pastor and Ranking Member Frelinghuysen. The ARIES facility at Los Alamos will provide a significant portion of the feedstock material for MOX until the Pit Disassembly and Conversion Facility comes online. The facility requires expansion to provide the amount of feedstock required per year to support the planned MOX fuel production schedule. What is the status of this expansion effort?

Mr. Black. No expansion is needed to support LANL's effort to convert the two metric tons of plutonium into certified plutonium oxide, using the ARIES process. NNSA provided additional funding in FY2009 to support risk reduction activities to increase the likelihood of success of the LANL workscope, including additional interim storage and installation of limited backup capability. This work is planned to be completed in FY2012 and is currently on schedule.

Chairman Pastor and Ranking Member Frelinghuysen. What is the readiness of the critical technologies necessary for completing the ARIES expansion effort?

Mr. Black. All critical equipment and technology required to support the conversion of the two metric tons is already installed and will be fully operational this fiscal year. The only remaining installation not yet complete is some equipment to dispose of non-special nuclear material.

QUESTION 16

FISSILE MATERIALS DISPOSITION

PIT DISASSEMBLY AND CONVERSION FACILITY (PDCF) CONSTRUCTION

Chairman Pastor and Ranking Member Frelinghuysen. For the past decade, NNSA had planned to construct a PDCF as a new, stand-alone facility at the Savannah River Site (SRS). However, NNSA has recently proposed a new alternative, installing a pit disassembly capability within the existing K-Reactor Facility at SRS. There is also a proposal to combine the Office of Environmental Management's Plutonium Preparation Facility (PuP) with the PDCF.

For fiscal year 2011, NNSA requests funds to prepare the conceptual design documentation necessary to support a selection of a single alternative for pit disassembly. Does NNSA expect to make a final decision on its path forward for pit disassembly in 2010? If not, when?

Mr. Black. NNSA expects to make a decision on its path forward by the end of 2010, following update of the conceptual design and the cost and schedule range.

Chairman Pastor and Ranking Member Frelinghuysen. How aggressive will NNSA's construction schedule have to be in order to start pit disassembly operations in 2021?

Mr. Black. The stand-alone PDCF is estimated to take approximately 13 years to start-up from the time the alternative decision is made, which currently does not support a 2021 start-up date. The combined K-Area facility could provide some flexibility in phasing the construction and start up activities. During the conceptual design phase, the project team will evaluate the feasibility of starting limited processes early, so the facility could provide some feed prior to completing the entire project.

Chairman Pastor and Ranking Member Frelinghuysen. When will a final determination been made on combining PuP and PDCF?

Mr. Black. DOE expects to make a decision on its path forward following update of the PDCF conceptual design and the cost and schedule range, expected to be completed by the December 2010.

What savings and efficiencies will be gained from combining the two facilities?

Mr. Black. There are potential life cycle and schedule advantages for the surplus plutonium disposition program if combined:

- Would avoid expenditure of resources for the design, construction, operation, and decontamination and demolition of an additional secure, Hazard Category 2 nuclear facility.
- Would avoid expenditure of additional security resources to protect an additional Security Category 1 plutonium facility.
- Could allow for greater program and schedule flexibility by executing a project in a phased approach.
- Could provide for possible cost avoidance at PANTEX by establishing early surplus pit storage at SRS.
- Could allow for leveling of Secure Transportation resources.

Chairman Pastor and Ranking Member Frelinghuysen. If the decision was made to go back to a stand-alone PDCF facility, what would be the completion date and what would happen to PuP given no funding is requested for it in the request?

Mr. Black. The stand-alone PDCF is estimated to take approximately 13 years to start-up from the time the alternatives decision is made. This estimate is based on taking approximately 2 years to establish the cost and schedule baseline (Critical Decision 2) and approximately 11 years from Critical Decision 2 to project completion, CD-4. This estimate will be updated during the next year as part of the alternatives analysis performed during the project conceptual design activities.

Should the decision be made to go back to a stand-alone PDCF, responsibility for management and funding of the PuP project would remain in the Office of Environmental Management (EM).

Chairman Pastor and Ranking Member Frelinghuysen. What risks does this place on the effort?

Mr. Black. The major program risk for both options is insufficient feed for the MOX facility in the early years, and the potential of not meeting fuel delivery schedules in the early years, even though they have yet to be negotiated.

QUESTION 17

FISSILE MATERIALS DISPOSITION

COST ESTIMATING

Chairman Pastor and Ranking Member Frelinghuysen. In January 2010, the Government Accountability Office (GAO) issued a very critical report of the Department's cost-estimating. One of the recommendations involves Independent Cost Estimates (ICE). An ICE is a review of cost estimates conducted by an independent entity with no stake in the approval or disapproval of a project. There is currently no requirement in the Department's regulations to conduct an ICE of major projects at critical decision (CD) milestones 1, 2, and 3. This undoubtedly contributes to the dramatic changes in Total Project Costs in many of the Department's major projects. As the GAO recommends, will you commit to conducting ICEs at CDs 1, 2, and 3 for PDCF?

If there will be an ICE, which organization or group will perform it? What, if any, projects within Fissile Material Disposition do not currently have ICEs at CD 1, 2, and 3?

Mr. Black.

The Deputy Secretary of Energy has directed that an Independent Cost Estimate (ICE) be conducted for the Pit Disassembly and Conversion Project to support a pending Critical Decision-1 alternative analysis selection scheduled for this coming December 2010. DOE's Office of Cost Analysis (OCA) will develop the independent government cost estimate.

QUESTION 18

FISSILE MATERIALS DISPOSITION

PDCF CARRY-OVER AND TRANSFER TO NUCLEAR NONPROLIFERATION

Chairman Pastor and Ranking Member Frelinghuysen. Weapons Activities supported PDCF in recent years. Congress provided over $127 million for PDCF in the last two years. What portion of this amount has been obligated and/or costed?

What is the amount of the remaining funds that will be shifted to Defense Nuclear Nonproliferation?

Mr. Black. From FY2008 through FY2010, Congress appropriated over $154 million in the Weapons Activities appropriation for PDCF including both Other Project Cost (OPC) and Total Estimated Cost (TEC). We cannot transfer uncosted balances from one appropriation to another; however, the Office of Fissile Materials Disposition within Defense Nuclear Nonproliferation will manage and expend these funds from within the Weapons Activities appropriation. Of the funds appropriated from FY2008 and FY2009 ($65 million) about $18 million remain as prior year uncosted balances. As of April 2010, approximately $73 million, or 47%, remains uncosted to support the PDCF project. Of the $73 million, projected costs for the remainder of the fiscal year (May through September) are estimated to be $39 million that would leave a projected uncosted balance of $34 million. $11 million of the $34 million is projected to be committed,

leaving an uncosted uncommitted balance of $23 million, which is projected to be costed in the first quarter of FY2011. In FY2011 funds for the PDCF project have been requested in the Defense Nuclear Nonproliferation appropriation.

Weapons Activities PDCF Available Balances ($ in thousands)

Fiscal Year		a (Prior Year Balances) Beginning Uncosted	b FY 2010 New BA	c Total Available to Cost (a+b)	d Costed Through April 2010	e Uncosted (b+c-d)
FY 2010[1]	Total TEC	14,394	30,321	44,715	16,452	28,263
	Total OPC	4,045	58,780	62,825	18,496	44,329
	Subtotal	18,439	89,101	107,540	34,948	72,592
Total FY 2008 -2010			154,399			
Total FY 2009 -2010			127,355			

[1] Data as of April 30, 2010

QUESTION 19

FISSILE MATERIALS DISPOSITION

COORDINATING PDCF ACROSS THE DEPARTMENT

Chairman Pastor and Ranking Member Frelinghuysen. What are the lines of communication and mechanisms being used to coordinate activities between the Office of Environmental Management (EM) and the National Nuclear Security Administration (NNSA) on the pit disassembly and plutonium preparation projects—e.g. the offices of the Deputy Administrator for Nuclear Nonproliferation and the Asst. Secretary for EM or NNSA Administrator and Asst. Secretary for EM?

Mr. Black. NNSA and EM jointly prepare and concur on correspondence and decisions dealing with both projects, from the highest levels of the Department to the staff level at the Savannah River Site. Additionally, both the PDCF and PuP project teams have representatives from NNSA and EM staff to ensure consistency and sharing of information between the offices.

Weapons Activities PDCF Available Balances ($ in thousands)

QUESTION 20

FISSILE MATERIALS DISPOSITION

MOX COST AND SCHEDULE

Chairman Pastor and Ranking Member Frelinghuysen. The MOX facility construction is well underway at Savannah River, South Carolina. Is the MOX facility on schedule to meet the start-up date of 2016?

Mr. Black. Yes, the MOX project is on schedule and within budget, and we expect it to meet its scheduled start-up date in 2016.

QUESTION 21

FISSILE MATERIALS DISPOSITION

MOX COST AND SCHEDULE

Chairman Pastor and Ranking Member Frelinghuysen. The Committee remains concerned about construction cost increases even as the Government Accountability Office (GAO) has reported significant progress has been made. This concern originates from experience as the total project cost has risen from $1.8 billion in fiscal year 2001 to the current estimate of $4.9 billion. Is the MOX facility currently on cost?

Mr. Black. The $1.8 billion estimate in fiscal year 2001 was an early planning estimate that lacked detailed engineering design work and assumed MOX construction would begin in 2004 and be complete in 2007. It was never an independently validated estimate of the MOX total project cost. Nevertheless, the MOX project is on track to meet its baselined cost estimate of $4.9 billion.

Chairman Pastor and Ranking Member Frelinghuysen. Has the Department addressed the shortcomings in the level of detail in the schedule and cost analysis that the GAO identified?

Mr. Black. In 2009 the MOX program updated its project schedule, risk analysis and cost estimate using the GAO's project management best practices as guidance. Additional detail was included in the MOX project schedule, as recommended by GAO, which reduced the number of long-duration activities by over 50% and provided greater schedule accuracy. In addition, as recommended by the GAO, a complete risk analysis of the MOX project schedule was performed, which focused on critical path and near critical path activities. Results of this risk analysis provided valuable information to MOX project leadership regarding how to prioritize and reduce risks in the project schedule. As noted in the recent GAO report, the MOX project is currently meeting its cost baselines with only minor and expected monthly variances. In 2009, the MOX project updated its cost estimate to finish the project, which confirmed that the project is still on track to complete with the total project cost of $4.9 billion.

QUESTION 22

FISSILE MATERIALS DISPOSITION

OVERSIGHT OF SAFETY AND SAFETY CONTROLS

Chairman Pastor and Ranking Member Frelinghuysen. The Government Accountability Office (GAO) has expressed concerns regarding the oversight of the MOX project, particularly safety and safety controls. Department of Energy headquarters oversight of the project, according to the GAO, needs to be strengthened. Are you taking actions to strengthen oversight?

Mr. Black. Yes, both NNSA and the Office of Health, Safety, and Security (HSS) are taking actions to strengthen oversight of the MOX project. For example, NNSA has conducted numerous reviews of the MOX facility safety systems, including the design and fabrication of nuclear process systems, safety computers, process piping, the emergency diesel generator, ventilation systems, structural steel, steel foundations and concrete for the MOX facility structure. All the recommendations and the comments resulting from these reviews have been incorporated and resolved.

HSS is in the process of implementing actions to improve nuclear safety oversight of nuclear facilities in response GAO recommendations. However, it is important to recognize that independent assessments at the MOX project are established in HSS's oversight policies as a lesser priority than for other facilities, such as the Waste Solidification Building, because the Nuclear Regulatory Commission is responsible for regulatory oversight. Any assessments conducted by HSS at the MOX project would be of the nature of internal corporate oversight/support.

Chairman Pastor and Ranking Member Frelinghuysen. What are the current oversight roles of the Department's headquarters elements, such as Health, Safety and Security?

Mr. Black. For the MOX project, the Office of Health, Safety and Security performs internal corporate oversight and support on behalf of the Secretary. The National Nuclear Security Administration has responsibility for line management oversight and authorities as the owner of the facility. The U. S. Nuclear Regulatory Commission performs nuclear regulatory licensing and enforcement functions, and the Occupational Safety and Health Administration is the regulator for non-nuclear worker safety.

Chairman Pastor and Ranking Member Frelinghuysen. The Nuclear Regulatory Commission has cited the MOX project with a number of security violations, albeit they were minor. Have corrective actions been taken?

Mr. Black. The MOX prime contractor and NNSA have reviewed the root causes of issues which led to the NRC notices of violation and have taken actions to address those causes. Examples of these actions include:

- Providing additional training to engineering, quality control and craft personnel on quality requirements;

- Simplifying complex work instructions and plans for craft personnel installing equipment in the field;
- Providing additional training to engineering, quality control and craft personnel on quality requirements;
- Enhancing the design review process in order to avoid errors that cause design details to not fully meet NRC requirements;
- Increasing the amount of time spent by engineering and quality control personnel in the field observing craft and subcontractor construction activities, particularly first time activities where mistakes are most often made.

QUESTION 23

FISSILE MATERIALS DISPOSITION

OVERALL OUTPUT OF THE MOX FACILITY

Chairman Pastor and Ranking Member Frelinghuysen. How many reactors will the MOX plant be able to supply?

Mr. Black. The number of reactors needed to absorb the MOX fuel depends on several factors, including the reactor size, type, and assumed MOX core fractions. For 1,000 MWe pressurized water reactors (PWRs) using roughly one-third MOX fuel in their cores irradiated for two cycles, approximately six reactors would be needed to consume the output of the MOX facility at its nominal throughput capacity of 3.5 metric tons plutonium per year. Boiling water reactors (BWRs) may be able to use higher MOX fuel core fractions (up to 50% compared to 33-40% for PWRs), so approximately four or five BWR units would be sufficient.

The Tennessee Valley Authority (TVA) is studying MOX fuel use in up to five of its reactors: three large BWRs plus two large PWRs. Pending the outcome of TVA's analyses, expected in late 2011, this combination of reactors might use between 85 and 100 percent of the output of the MOX facility.

QUESTION 24

FISSILE MATERIALS DISPOSITION

MOX CUSTOMERS

Chairman Pastor and Ranking Member Frelinghuysen. NNSA is considering a sole source contract with AREVA to market a portion of the MOX plant's output. The entire development of the MOX plant has been funded by the U.S. taxpayers, and I'd like to be confident that the plant's output goes for the greatest national good.

The MOX fuel produced will be purchased by customers as fuel for their commercial reactors. There is currently no contract in place with a customer. Duke Energy stepped away from the project. Tennessee Valley Authority is emerging as a potential customer but a contract

has not been finalized. This raises questions about the overall marketing and outreach efforts for the marketing efforts. Who is responsible for marketing the MOX fuel?

Mr. Black. Under its contract with NNSA for the MOX fuel program, Shaw AREVA MOX Services, LLC is responsible for establishing contracts with utility companies to irradiate MOX fuel.

Chairman Pastor and Ranking Member Frelinghuysen. What efforts are being made to improve the marketing and outreach to ensure a contract is in place when MOX fuel is produced?

Mr. Black. Because neither DOE/NNSA nor MOX Services is a traditional nuclear fuel supplier, nuclear companies have concerns about contracting with these entities for their fuel supplies. Consequently, we are exploring how we might contract for and supply MOX fuel to commercial entities through established nuclear fuel fabrication vendors. All three such vendors operating in the United States—AREVA, Westinghouse, and GE Hitachi/Global Nuclear Fuel (GEH/GNF)—have expressed interest in marketing MOX fuel produced at the MOX facility to their customers. Because nuclear companies already have established relationships with these vendors and their sales and support forces, and because these companies value flexibility in choosing fuel designs and suppliers, pursuing this approach can reasonably be expected to reduce their concerns about participation in the MOX program.

The design of the MOX facility is being modified so the facility can produce MOX fuel for both pressurized water reactors and boiling water reactors, using different vendors' fuel designs. This change will expand the pool of interested utility companies by making more MOX fuel types available and not requiring these companies to accept any particular vendor's fuel design as part of the deal.

Chairman Pastor and Ranking Member Frelinghuysen. One of the problems that hurt the Duke arrangement was the lack of a certain MOX fuel supply – a situation that could shut down a plant. How is this risk going to be mitigated?

Mr. Black. To address the reliability of fuel supply to utility companies participating in the plutonium disposition program, NNSA is creating an inventory of 155 to 170 metric tons of low-enriched uranium—derived by down-blending 12.1 metric tons of surplus highly enriched uranium—that can be provided to a utility's uranium fuel fabricator in the event of delays in deliveries of MOX fuel.

QUESTION 25

FISSILE MATERIALS DISPOSITION

TENNESSEE VALLEY AUTHORITY (TVA) CONTRACT

Chairman Pastor and Ranking Member Frelinghuysen. A contract is in the works for TVA to use MOX fuel in their reactors. What is the status of this contract?

Mr. Black. In late February, NNSA and TVA executed an Interagency Agreement to fund technical, safety, and environmental analyses of MOX fuel use in up to five TVA reactors. Pending the successful outcome of these studies (including the completion of requisite NEPA analyses), a fuel supply contract (probably between TVA and one or more established fuel fabrication vendors) will be developed and ready for execution.

Chairman Pastor and Ranking Member Frelinghuysen. We understand there are issues regarding compliance with nonproliferation agreements raised by using MOX fuel in TVA reactors involved with weapons activities. How is this being addressed?

Mr. Black. NNSA and TVA have a separate Interagency Agreement under which one or more TVA pressurized water reactors (PWRs) are used to produce tritium for weapons. Depending on future requirements, TVA estimates that between one and three of its PWRs will be needed for the tritium program. TVA currently operates three PWRs, and is completing construction on a fourth, which is scheduled to commence commercial operation in 2012. Language in the Plutonium Management and Disposition Agreement with Russia can be interpreted to prohibit the use of "disposition" plutonium in reactors that are also producing tritium for weapons. As TVA expects to be able to produce all the needed tritium in one or two PWRs, there will still be two or three PWR reactors available for MOX use after the fourth unit is completed. In addition, the three TVA boiling water reactors at Browns Ferry are not involved in the tritium program, and will be available for MOX use.

Chairman Pastor and Ranking Member Frelinghuysen. How many reactors does TVA operate and where are they located?

Mr. Black. TVA currently operates the following six reactors: Browns Ferry Units 1, 2, and 3 (BWRs), near Decatur, AL; Sequoyah Units 1 and 2 (PWRs), near Soddy Daisy, TN; and Watts Bar Unit 1 (PWR), near Spring City, TN.

Chairman Pastor and Ranking Member Frelinghuysen. What modifications will need to be made on the TVA reactors?

Mr. Black. The following modification will need to be made on TVA reactors: PWRs—to utilize MOX core fractions of 33-40%, PWRs will likely need to modify their soluble boron systems to be able to accommodate enriched soluble boron (boron enriched in the ^{10}B isotope). Security and transportation infrastructure upgrades would likely also be required. BWRs—only security and transportation infrastructure upgrades are likely to be required for BWRs.

QUESTION 26

FISSILE MATERIALS DISPOSITION

OTHER LICENSED MOX FUEL DESIGNS

Chairman Pastor and Ranking Member Frelinghuysen. As I understand it, only AREVA currently has a U.S. licensed MOX fuel design, although Westinghouse and General Electric (GE) are also pursuing licensing. What is the status of the Westinghouse and GE licensing efforts?

Mr. Black. NNSA and MOX Services are currently working toward a business model that would enable any of the three fuel fabrication vendors to contract with the MOX facility to produce MOX fuel of their respective fuel designs, which the vendors would then market to their customers. Assuming that the contract option for MOX Services to operate the MOX facility will be exercised, its responsibility would be limited to operation of the facility (fuel fabrication).

Chairman Pastor and Ranking Member Frelinghuysen. Is there a reasonable opportunity to regain some investment by allowing any company to invest in using the MOX plant to produce fuel of its own design, or does it make most sense to allow one company to be in charge of production and marketing?

Mr. Black. Both Westinghouse and General Electric Hitachi/Global Nuclear Fuels have expressed interest in having MOX fuel produced at the MOX facility using their respective designs; however, discussions with those companies are in the early stages. NNSA and MOX Services officials have met with representatives of both companies multiple times, and they are developing scope, schedule, and cost proposals for the effort required to license their respective designs.

QUESTION 27

FISSILE MATERIALS DISPOSITION

WASTE SOLIDIFICATION BUILDING

Chairman Pastor and Ranking Member Frelinghuysen. The Waste Solidification Building is a $334 million facility designed to process waste streams from the MOX and pit disassembly and conversion facilities. What is the status of this construction project?

Mr. Black. The WSB project, which has a baseline total project cost of $344.5 M, is approximately 36% complete as of March 2010. Design is 100% complete, and construction is approximately 20% complete. The project is currently on schedule and budget, with operations slated to begin in 2013.

QUESTION 28

NONPROLIFERATION WORK WITH RUSSIA

U.S.-RUSSIA RELATIONSHIP

Chairman Pastor and Ranking Member Frelinghuysen. The success of nonproliferation programs in Russia hinges on successful negotiations for access to sites. These negotiations depend on a number of factors, including relations with a particular site and the overall relations between the United States and Russia. Have negotiating conditions on the ground changed since this Administration has been office? If so, in what way?

Mr. Black. There have been no noticeable negative differences in negotiating conditions on the ground with Russia since this Administration entered office. Generally, our cooperative activities have remained consistently positive, even during politically difficult times. In general, the leadership of both countries manifests high level support for these nonproliferation programs and we do not anticipate any undue access issues.

Chairman Pastor and Ranking Member Frelinghuysen. If not, what are the broad areas of impediments?

Mr. Black. In general there are no major impediments to the success of our programs in Russia. If we have any uncertainties, it is in the area of sustainability, mostly of installed material protection, control and accounting equipment, and even there, we have several success stories that give us optimism for ultimate success.

QUESTION 29

NONPROLIFERATION WORK WITH RUSSIA

STATUS OF COOPERATIVE THREAT REDUCTION AUTHORIZATION

Chairman Pastor and Ranking Member Frelinghuysen. The Cooperative Threat Reduction authorization will expire in 2012. Would you take a moment to explain to the Subcommittee what impact this would have on your work in Russia?

Mr. Black. With respect to Cooperative Threat Reduction Agreement, we will work with our colleagues in the Department of Defense to find resolution to this issue. Of more immediate concern for the Office of Defense Nuclear Nonproliferation is the statutory deadline to complete all Material Protection, Control and Accounting (MPC&A) work by the end of 2012. If Congressional authorization for MPC&A work in Russia were allowed to lapse, we would stop all assistance to Russian nuclear facilities and oversight organizations. This would almost certainly involve stopping ongoing upgrades at facilities that contain several tons of weapons useable nuclear materials. Our relationship would have to be based entirely on exchanges of best practices and other reciprocal discussions. Facilities, training centers, and oversight

organizations would need to acquire additional funding or curtail security activities to accommodate the change.

It is within this context that on March 30, 2010, we submitted an interagency cleared legislative proposal to the Senate and House of Representatives that requested removal of the statutory deadline of January 1, 2013, for completion of an MPC&A program for nuclear materials that can be supported, maintained, and operated solely by the Russian Federation. If enacted, the amendment would provide us the flexibility necessary to continue our efforts to assure the adequacy of the Russian Federation's MPC&A program before ending the U.S. role in it.

Chairman Pastor and Ranking Member Frelinghuysen. Are there discussions underway to establish a follow-on program? If so, what is the status of these discussions?

Mr. Black. To date, discussions with our Russian counterparts have focused on meeting the goal of completing MPC&A cooperation by the end of 2012. These discussions focus on progress toward completing ongoing upgrades, as well as the process of transitioning to Russian responsibility the task of sustaining the MPC&A funded upgrades. We have not yet broached with our Russian counterparts the ramifications of relief from the mandate to discontinue our work. We are confident that our counterparts in Rosatom and Rostekhnadzor will be appreciative of any continued assistance. Should relief be granted from the mandate to discontinue the program December 31, 2012, the MPC&A program anticipates a reduced scope of work in Russia, focused mainly on a limited number of sustainability and system upgrade efforts.

Chairman Pastor and Ranking Member Frelinghuysen. If there is no further authorization, what would the Russian security program look like after fiscal year 2012?

Mr. Black. Nuclear facilities, oversight agencies, and federal security budgets would need to increase significantly to accommodate a complete DOE withdrawal. Workloads to improve security regulation and to provide training support would increase as well. These budget issues would need to be addressed in a budget climate negatively affected by the global economic downturn, and numerous competing priorities, such as Russia's national health crisis, housing and infrastructure issues, domestic terrorism, etc.

Chairman Pastor and Ranking Member Frelinghuysen. Are radiological threat reduction and border security work included under the Cooperation Threat Reduction authorization and what will be the impacts on this work?

Mr. Black. Our view is that SLD work is not covered by Cooperative Threat Reduction Agreement or the legislative mandate to conclude MPC&A cooperation by December 31, 2012. Nonetheless, all ports of entry radiation detection installation work scheduled in Russia under the Second Line of Defense (SLD) will be completed by the end of 2011. SLD will transition maintenance of all sites it has funded by the end of 2013, and the installation of a communication integration system, which will link all points of entry with the Federal Customs Service (FCS) headquarters, will be completed by the end of 2015.

Similarly, GTRI's nuclear removal efforts in Russia do not fall under either mechanism. They fall under a separate Government-to-Government Agreement and would not, therefore, be affected if the Cooperative Threat Reduction authorization were to expire. Likewise, GTRI's reactor conversion program will conclude an Implementing Agreement for reactor conversion feasibility studies with Rosatom in 2010 that will fall under the fuel removal Government-to-Government Agreement, not CTR. However, GTRI's Radioisotopic Thermoelectric Generator (RTG) recoveries and other radiological efforts in Russia do come under the Cooperative Threat Reduction authorization and could not continue if the agreement was not renewed or a new agreement was not formalized.

QUESTION 30

NONPROLIFERATION WORK WITH RUSSIA

PROGRESS IN RUSSIA

Chairman Pastor and Ranking Member Frelinghuysen. We have made progress in securing Russian nuclear materials and weapons, cooperating with Russia to enhance the security of hundreds of metric tons of nuclear materials in the Rosatom complex and many nuclear weapons with the Russian Navy and Strategic Rocket Forces. Where is the finish line for this effort? What work scope is left to do with Russia?

Mr. Black. We believe that this work should continue until it is determined that the entire system—to include regulations, oversight, and Russian resource allocations--have improved to the point that security will be consistently maintained at levels similar to those achieved at U.S. nuclear facilities. We do not believe that point has been reached, particularly at some of the civilian facilities. We do believe that Russia has made great strides toward these goals; unfortunately it is difficult at this point to identify a realistic date when Russia will achieve this status.

Chairman Pastor and Ranking Member Frelinghuysen. What work in Russia is included in the Administration's initiative to secure all vulnerable nuclear materials in four years?

Mr. Black. The Department's Material Protection, Control and Accounting (MPC&A) program has requested $541M over the course of the next two fiscal years to meet this challenge. This funding will facilitate the completion of security upgrade work at the remaining 19 of a total 214 high-priority nuclear material buildings in our cooperation with Rosatom, as well as maintain the upgrades that have been placed over the course of the MPC&A program. It will also permit us to continue the conversion of Russian highly enriched uranium into low enriched uranium under the successful Material Consolidation and Conversion project.

Additionally, the Global Threat Reduction Initiative (GTRI) plans to convert or verify the shutdown of 71 HEU-fueled research reactors in Russia by 2020. In 2010, GTRI will sign contracts to conduct feasibility studies for the conversion of the first 6 Russian research reactors.

QUESTION 31

NONPROLIFERATION WORK WITH RUSSIA

BRATISLAVA NUCLEAR SECURITY

Chairman Pastor and Ranking Member Frelinghuysen. The Bratislava agreement initiated a successful effort to rapidly enhance the security of a number of sites within Russia. The scope of work under the Bratislava nuclear security agreement has expanded since its inception. Is this work now complete?

Mr. Black. As agreed under the Bratislava Nuclear Security Initiative, all nuclear security upgrade work in Russia that was agreed to by February 2005 was accelerated substantially and completed by the end of CY2008. However, as a result of that success, some important additional work scope – security upgrades at material buildings not previously involved in MPC&A at the time the Bratislava agreement was signed, as well as additional upgrades to strengthen against the threat of insider diversion of material -- was added to MPC&A's mission and will continue through December 2012, and possibly beyond.

QUESTION 32

NONPROLIFERATION WORK WITH RUSSIA

NUCLEAR MATERIAL SECURITY POST-NEW START AGREEMENT

Chairman Pastor and Ranking Member Frelinghuysen. The proposed new START agreement will reduce the nuclear weapons stockpiles of Russia and the United States. Accelerated dismantlement rates naturally lead to questions regarding security for both countries. Do you expect additional program scope if an agreement is reached with Russia?

Mr. Black. Not as a result of the New START Treaty. The Treaty will reduce and limit the number of deployed strategic nuclear warheads, and does not address the issue of weapons dismantlements. Therefore, we do not anticipate that the New START Treaty would have any direct impact on either the U.S. disposition programs or Russian site security programs.

Chairman Pastor and Ranking Member Frelinghuysen. Would separate arrangements need to be made or do current agreements suffice to secure this additional material?

Mr. Black. The MPC&A program believes it has all of the authority necessary if any additional work scope related to material protection and detection results from the New START Treaty.

QUESTION 33

NONPROLIFERATION WORK WITH RUSSIA

ROSATOM WEAPONS COMPLEX

Chairman Pastor and Ranking Member Frelinghuysen. The funding request for the Russian Rosatom Weapons Complex would increase by nearly 50 percent over last year. I think this is critically important work, and helps improve the safety of the United States and our allies by improving the security of these highly sensitive sites. However, I have some concerns about how much oversight we have over these activities.

What can you tell us in setting out how these funds will be used, both by site and by activity?

Mr. Black. The $33.8M increase in funds for Rosatom Weapons Complex sites over the FY2010 budget supports a concerted programmatic effort to take advantage of new opportunities to further bolster security at all sites in the Complex, including tightening measures to mitigate insider threat vulnerabilities at bulk processing facilities. In particular, major new upgrade efforts are being funded at the All-Russian Scientific Research Institute of Experimental Physics (VNIIEF, formerly known as Arzamas-16), the Siberian Group of Chemical Enterprises (Tomsk), and the Mining and Chemical Combine (MCC, Krasnoyarsk-26). At VNIIEF, the additional funding is focused on upgrades to a new area recently opened to the MPC&A program and a perimeter alarm system around one of its most sensitive sites. At Tomsk, the majority of additional funding is focused on a perimeter at a high priority plant site and at MCC; the additional funding is being used to implement additional comprehensive upgrades to the external mountain perimeter and improving guard force response capabilities. These efforts reinforce our defense in depth strategy aimed at reducing opportunities for the successful diversions of nuclear materials.

Chairman Pastor and Ranking Member Frelinghuysen. How much access do we have to these sites?

Mr. Black. The MPC&A program continues to enjoy sufficient access at these sites to ensure that the upgrades funded by the program are installed in compliance with the agreement reached on access and the assurances set forth under the Material Protection and Control and Accounting Agreement and the umbrella Cooperative Threat Reduction Agreement. In each case, assurance procedures have been or will be established within the parameters of the contracts providing rights for access sufficient for us to verify that U.S. funds are being used as intended.

Chairman Pastor and Ranking Member Frelinghuysen. How do you ensure that the funds are being used as you expect, and that the upgrades are being maintained?

Mr. Black. In addition to the negotiated programmatic assurances, which provide for annual assurances for three years after the completion of an upgrades contract, the U.S. Project Teams maintain ongoing technical engagement where deliverables under contracts are reviewed and discussed with their Russian counterparts. Most of the U.S. Project Teams have been working

together for over 15 years and have developed an indispensible relationship that encourages the exchange of ideas, lessons learned and best practices. This dialogue complements the more formal assurance process described in deliverables and visual access of upgrades. Upon completion of the upgrades, the areas are folded into the overarching joint sustainability regime.

QUESTION 34

NONPROLIFERATION WORK WITH RUSSIA

EXPANSION OF WORK AT CIVILIAN NUCLEAR SITES

Chairman Pastor and Ranking Member Frelinghuysen. The explanation in your budget request for material protection work at Civilian Nuclear Sites notes that the program is expanding work with other countries. However, no funding is included in your out-year budget projections after 2012, and the fiscal year 2011 request is cut $4 million from last year. This seems like an important program. What are the obstacles to continuing this program with other countries, and how are you working to overcome them?

What other countries would you like to work with? How were these identified?

Mr. Black. We have a successful and ongoing program of nuclear material security cooperation with China. The program, however, is substantially different from the Russia MPC&A program. More to the point, we are not funding major security upgrades at Chinese nuclear facilities.

Instead, we are partnering with the China Atomic Energy Authority (CAEA) to share best practices on a wide range of MPC&A disciplines in order to raise awareness of nuclear material security issues and to promote the adoption of modern nuclear security methods and technologies in China. To date, U.S.-China cooperation has led to more than 10 nuclear security best-practices workshops, each involving 20-30 Chinese participants.

We cooperate primarily with China's civilian nuclear sector, but are open to expanding our work to include the Chinese defense complex as well, once the environment is suitable for such cooperation.

We currently are in discussions with CAEA to establish a nuclear security training Center of Excellence, a pledge China made at the nuclear security summit, which will serve as a central venue for training in all aspects of nuclear security and which will have sufficient capacity to meet the needs of China's expanding nuclear complex.

We anticipate cooperation with China will continue at this level for the foreseeable future. We do not face obstacles to the current level of civilian cooperation, but we look to involve defense complex personnel in our cooperation because of the obvious relevance to military facilities. We consistently make clear to our Chinese interlocutors that we see a benefit in the

involvement of the defense complex, but thus far we have not convinced the Chinese to involve defense personnel.

Consistent with President Obama's goal of preventing nuclear terrorism, the Office of Defense Nuclear Nonproliferation is seeking to develop a nuclear material security partnership with India as well.

However, India pledged at the nuclear security summit to collaborate on the establishment of a Nuclear Energy Center of Excellence, with nuclear security training and best practices as one of several focus areas. Although, this center is being characterized as an Indian center focused on sharing expertise and knowledge with regional partners as the primary goal, we will work closely with India on the nuclear security aspects of it.

Chairman Pastor and Ranking Member Frelinghuysen. If you could overcome the obstacles which you just explained, what would be a reasonable out-year funding profile for this program?

Mr. Black. We estimate that we will need a further $10M in Fiscal Year 2012, and $5M in Fiscal Years 2013-2016 to continue our MPC&A best practices cooperation with China.

If agreement is reached for a U.S. investment in the Indian Center of Excellence, it is expected that DOE and DoD will share costs. With this in mind, the MPC&A Program is estimating a need of approximately $10 to $15 million in FY2011 to cover a portion of the construction of the new buildings and associated training grounds. Beyond the construction costs, we anticipate that there would be annual costs associated with curriculum development, training course implementation, and collaborative technical engagements furthering nuclear security best practices

QUESTION 35

NONPROLIFERATION WORK WITH RUSSIA

RUSSIAN CIVILIAN NUCLEAR SITES

Chairman Pastor and Ranking Member Frelinghuysen. The request notes that three Russian civilian sites have withdrawn from cooperation in the Civilian Nuclear Sites program.

What is the story here? Is the work complete or are they no longer cooperating?

Mr. Black. The work was considered complete at the time that cooperation ceased, but we have been unable to maintain cooperation in the area of sustainability -- which we would have been willing to do to a degree -- because of the Russian sites' decisions. We believe the sites elected to cease cooperation because they no longer felt U.S. aid was necessary to maintain security.

Chairman Pastor and Ranking Member Frelinghuysen. Do you see this happening more?

Mr. Black. To this point, Rosatom has not given us any indication that other sites will be withdrawing from the MPC&A cooperation.

Chairman Pastor and Ranking Member Frelinghuysen. How do we know that the upgrades which we have paid for are being maintained at these sites?

Mr. Black. Without access to these sites, DOE cannot verify that the upgrades are being maintained. That said, over the course of our cooperation with the Novosibirsk Chemical Combine Plant (NCCP), we are aware that it generated sufficient revenues to maintain the MPC&A upgrades on its own. Further, the staff at NCCP is among the most effective with regards to MPC&A work. This was the primary basis given by the site for its decision to discontinue receiving support for MPC&A upgrades.

QUESTION 36

NONPROLIFERATION WORK WITH RUSSIA

DECREASE FOR SUSTAINABILITY

Chairman Pastor and Ranking Member Frelinghuysen. As the security work in Russia is completed, sustaining these upgrades becomes more important both in terms of reducing the risk of nuclear proliferation and ensuring that taxpayer dollars have been invested well. The fiscal year 2011 request of $61 million in National Programs and Sustainability is a decrease of $7.5 million from fiscal year 2010. What explains the decrease given the priority of sustaining the security upgrades?

Mr. Black. Sustaining investments in security upgrades remains an important priority. Each MPC&A sub-program supports sustainability activities within its individual program budget, so the decrease for National Programs and Sustainability does not accurately reflect the total amount of funding dedicated to sustainability activities in Russia. Estimates for all MPC&A programs for sustainability costs in Russia, excluding the National Programs and Sustainability program, totals $101,026,000 for FY2011. Sustainability costs are expected to rise slightly in the outyears as upgrade work is completed.

QUESTION 37

NONPROLIFERATION WORK WITH RUSSIA

RUSSIAN OVERSIGHT OF NUCLEAR SECURITY

Chairman Pastor and Ranking Member Frelinghuysen. The responsibility for security of Russian nuclear sites rests, at the end of the day, with the Russian government. Here in the United States, NNSA, the Nuclear Regulatory Commission, and the Department of Defense have responsibility for security oversight at different sites.

How is this responsibility fulfilled by the Russian government?

Mr. Black. The Russian Federation has two regulatory entities, Rostekhnadzor and Rosatom, whose responsibilities are to provide oversight of commercial nuclear facilities and weapons nuclear complex compliance with state regulations on material protection, control, and accounting of nuclear materials. The MPC&A program has extensive cooperation with Rostekhnadzor and Rosatom. We assist both Rostekhnadzor and Rosatom with the identification of gaps in their regulatory statutes and we fund the creation of regulations to fill those gaps. With MPC&A assistance, 114 Rosatom and Rostekhnadzor regulations have been implemented, and 59 more are undergoing development.

Chairman Pastor and Ranking Member Frelinghuysen. Do they have consistent regulations?

Mr. Black. Numerous regulations have been developed over several years and as result of ongoing improved security culture and MPC&A cooperation with both organizations, regulatory guidance requires continuous improvement to ensure a consistent regulatory basis.

The Rosatom sites are inspected by Rostekhnadzor, Russia's governmental inspection arm, and must comply with regulations enacted to protect nuclear material and must be subject to an inspection program. Russia and the U.S. are working jointly in a program to update regulations for nuclear sites. Regulations for oversight activities by Rostekhnadzor are reasonably consistent. The MPC&A Program continues to work with Rostekhnadzor in the area of regulatory development to further standardize inspection/oversight requirements and methodologies, and even training requirements for inspection personnel.

Russian regulations also define an oversight responsibility for Rosatom to ensure site compliance with MPC&A requirements. At this level, there is currently no regulatory basis for consistent execution of Rosatom's oversight activities. The MPC&A Program is currently working with Rosatom to develop the necessary regulations, including methodologies for conducing oversight activities that will ensure a consistent approach to oversight activities.

Chairman Pastor and Ranking Member Frelinghuysen. Is there an opportunity for us to share information and expertise in order to strengthen their nuclear site inspection and enforcement capacity?

Mr. Black. The Inspection Project has recently initiated a series of best practice workshops with Rostekhnadzor. The first workshop was conducted on January 28-29, 2010 and involved NNSA, NRC, the Russian Science Engineering Center for Nuclear and Radiation Safety (OSE) and Rostekhnadzor. The specific focus of this workshop was to share security-related best practices in the topical areas of 1) inspection process, 2) inspector training and turnover, and 3) licensing, execution of findings, and penalties. The Inspection Project will be meeting with Rostekhnadzor on April 21-23, 2010 to discuss the future best practice workshop topics.

The Russian military has its own inspection program, but no joint work has been done to date in this area. Future cooperation in this area of regulations and inspections would be beneficial.

QUESTION 38

NONPROLIFERATION WORK WITH RUSSIA

SUSTAINABILITY IN 2013 AND BEYOND

Chairman Pastor and Ranking Member Frelinghuysen. I understand that the Russian authorities have agreed for the United States to end its work at their nuclear sites by January of 2013.

What specific roles and responsibilities will they take over that are currently performed or supported by the United States today?

Mr. Black. Over the last few years we have been working with Russian officials from several different organizations to develop transition plans to implement what we had understood to be the will of Congress, which was that our work should cease by January of 2013. However, we have increasingly felt the need for the MPC&A program to have flexibility that will allow it to continue helping Russia strengthen and maintain security of its nuclear materials, and that is what prompted our proposal to change the governing legislation.

On March 30, 2010, the Department of Energy sent a proposal to the President of the Senate and to the Speaker of the House of Representatives, that section 3156(b)(1) of the 2003 Bob Stump National Defense Authorization be amended, providing relief to the MPC&A program from the requisite discontinuation of its activities on December 31, 2012. While we are optimistic that relief from this requirement will ultimately be granted, if the program is forced to discontinue its work at the end of 2012, we will witness a breakdown of elements necessary to sustain MPC&A upgrades. For nearly a decade, the MPC&A program has provided partial or full support of these functions at Rosatom and Ministry of Defense involved in the program. Those elements are:

- Site MPC&A Organization
- Site Operating Procedures (Instructions)
- Human Resource Management and Site Training
- Operational Cost Analysis
- Equipment Maintenance, Repair, and Calibration
- Performance Testing and Operational Monitoring
- MPC&A System Configuration Management
- MPC&A Regulatory reform
- Inspector training
- Transport system maintenance
- Material measurement methodology development

Chairman Pastor and Ranking Member Frelinghuysen. Are you confident that they will be able to take over all of the sites currently funded by the program?

Mr. Black. No, sir, I am not. Many aspects of the Russian nuclear security system are still evolving, and they have not achieved the types of practices we follow here in the U.S. This

evolution is stimulated in large part by DOE initiatives to reform regulations, improve security culture, and infuse security managers with new perspectives on nuclear security. This evolution will slow or stop if DOE assistance ends. Regarding the takeover of facility support, MPC&A's Russian counterparts fully understand that the MPC&A program will not continue without end. They have been fully prepared by U.S. officials that it is incumbent upon the Russian Federation to identify the fiscal resources necessary to maintain the upgrades funded by the MPC&A program over the course of our cooperation with them. Our Russian counterparts have acknowledged this responsibility and have informed MPC&A officials that they intend to sustain these upgrades. We have not as yet seen indications of this intention reflected in increases in MPC&A-related funding at all the sites involved in our program.

Chairman Pastor and Ranking Member Frelinghuysen. If not, what are the likely impacts of this lack of support by the Russians?

Mr. Black. The sustainability of the MPC&A upgrades in Russia is crucial to long-term success. If the Russian Federation does not adequately sustain the upgrades we installed under MPC&A cooperation, there is certain to be a degradation of security of nuclear materials in that country, and an increased risk of theft or diversion of those materials.

Chairman Pastor and Ranking Member Frelinghuysen. How might this affect U.S. and global security?

Mr. Black. Russia has, by far, the largest and most active stockpiles of weapons grade nuclear materials on earth. Nowhere are the challenges associated with material accounting, preventing insider theft, and securing shipments greater than they are in Russia. Should the security situation degrade, clearly there would be an increased risk that nuclear material could be stolen and potentially used against the U.S., our friends, or Allies.

QUESTION 39

NONPROLIFERATION WORK WITH RUSSIA

INSIDER THREAT AND THE RUSSIAN SECURITY CULTURE

Chairman Pastor and Ranking Member Frelinghuysen. We have been upgrading the security of nuclear material overseas for almost two decades. A primary concern continues to be the insider threat. The best security systems money can buy are useless if they can be easily bypassed by corrupt personnel on the inside. What level of confidence do you have that the Russians are adopting an improved security culture?

Mr. Black. Under the nuclear security culture enhancement project, a nuclear security culture coordinator (nuclear security advocate) has been established at nine pilot sites in Russia. Between March 2006 and June 2007, Rosatom placed a hold on the contracts between the U.S. and the five Rosatom sites while Rosatom made sure that the nuclear security culture program was aligned with the goals of its agency. During that period, all five of the Rosatom sites continued to implement the nuclear security culture pilot program, because they found that their

site benefitted from the program. The pilot program has now expanded to 11 sites and there is interest from other sites to join.

Under the culture project, training materials have been developed and implemented for all levels of staff regarding the credibility of the insider threat and the importance of mitigating that threat. Two videos and several poster campaigns increasing awareness of the insider threat have been developed and distributed throughout the nuclear complex. In addition, in 2009, a workshop on the insider threat was sponsored by the project. Due to the success of that workshop, Rosatom requested that we sponsor three iterations of a workshop on Mitigating the Insider Threat Using Behavioral Science. The first of those workshops was held in Moscow in February 2010 and received positive feedback from the participants.

In a recent lessons learned exchange, it was noted that some material from the 2009 U.S. workshop presentations on insider threat have been incorporated into the Russian process.

The Joint Working Group on Nuclear Security Culture has advocated the drafting of a Rosatom statute on implementing a systematic security culture enhancement program. This statute is scheduled to be finalized in the second half of FY10.

Chairman Pastor and Ranking Member Frelinghuysen. What are the biggest obstacles to improving the Russian security culture?

Mr. Black. There are several obstacles to changing security culture anywhere it needs to be changed. Generally speaking, security culture change is not being driven by high-level officials, which is a prerequisite for real change. Some of our partners simply do not believe there really is a threat of nuclear theft, diversion, smuggling, or terrorism, and if they do accept it, they don't think it is as serious as we think it is. If they think it is serious, they don't believe that anything they can do will prevent it. In many cases, we are working with partners whose priorities are simply on other aspects of the business, such as expanding nuclear power, increasing sales or generating revenue, cutting costs, etc. The hard work of fundamentally improving security, especially through culture change, is not a high priority for some of our partners.

QUESTION 40

NONPROLIFERATION WORK WITH RUSSIA

COST-SHARING RUSSIAN SECURITY WORK

Chairman Pastor and Ranking Member Frelinghuysen. As the Russian economy emerges from its post-Communist struggles, it would seem reasonable that Russia would be able to cost-share with the United States on the remaining security work and sustainability. What is the status of these efforts?

Mr. Black. Cost-sharing examples with Russia on MPC&A and the Second Line of Defense programs are extensive. It has been a principle of both programs since their inception to

encourage and press for cost-sharing. Both the MPC&A program and SLD are working toward transition of most if not all maintenance and sustainability for the upgrades.

Chairman Pastor and Ranking Member Frelinghuysen. Could you provide a list of examples where Russia is cost-sharing security upgrades with the United States?

Mr. Black. We have numerous examples of cost-sharing for security upgrades with Russia. Examples include:

- The Russian government has provided $3 million to help return the HEU spent fuel from the Vinca Institute in Serbia to Russia.
- The Russian government has provided cost sharing for physical protection upgrades and sustainability for various commercial and industrial sites using radiological sources
- Russia has provided the funding to remove and/or dispose of multiple Radioisotopic Thermoelectric Generators (RTGs), which could be sought by terrorists for use in a "dirty bomb."
- Russia is sharing costs for equipment and labor in the development, review, enactment, distribution, and implementation of regulations for the MoD, 12th GUMO, Strategic Rocket Forces, Navy, and Air Force. To date the total sharing is estimated to be $6,868K.
- Rosatom is cost sharing some equipment and labor in the development of some measurement methodology implementation. Estimates for the measurements methodologies and measuring equipment are approximately $2M.
- One Rosatom site provided approximately $1.5 million in funding over a three year period for upgrades at its metallurgical plant
- At another site the USPT funded the procurement of the fence while Russia funded the installation of the fence and completed additional infrastructure. Also, the facility has pledged equal cost-sharing for a perimeter, entry control point, and building upgrades, which is likely to reach $30 million or more.
- At a separate site Russia contributed $1 million for the refurbishment of a building designated for consolidation, $1 million for upgrades at the site perimeter, and $4 million for the relocation of production processes from four buildings.
- Russia has contributed $4.5 million for the renovation and repair of ProForce training facilities, $4 million for Rosatom regulatory development from 2005 to present, and $2.97 million for Ministry of Defense regulatory implementation.
- Russia has contributed approximately $21 million for training security guards involved in the transportation of nuclear weapons in counterterrorism tactics at the Abramovo Counterterrorism Training Center.
- The Second Line of Defense Program (SLD) and the Federal Customs Service (FCS) of Russia work together to install radiation detection systems at 100% of Russia's points of entry; at this time, each side has installed equipment at approximately the same number of sites and we have completed approximately 320 of the approximately 370 points of entry/exit. As SLD and FCS near completion of this goal in FY11, sustainability is becoming increasingly important. In FY11, SLD and FCS will split these costs equally, and they will be fully transitioned to FCS by FY13. In addition, a

communication integration system--which will connect all of these radiation detections system to FCS headquarters--is currently being installed; the costs for this will also be split approximately equally. FCS's continued cooperation in both the areas of sustainability and cost-sharing on the communications project are integral to the long-term success of SLD's efforts.

- The recently signed protocol to the Plutonium Management and Disposition Agreement (PMDA) commits the United States to provide up to $400 million to support plutonium disposition, subject to the availability of appropriated funds. Russia has committed to fund the balance of its program, which Russian Foreign Minister Sergei Lavrov recently estimated to be approximately $2.5 billion.
- Additionally, the Gas Turbine-Modular Helium Reactor (GT-MHR) program is a 50/50 cost shared research and development program between Rosatom and DOE and is included in the amended PMDA as one of the technologies that may be used for plutonium disposition by either Party. Since Fiscal Year 1999, Rosatom has contributed approximately $33 million and DOE has contributed approximately $29 million in Russia towards developing this nuclear reactor concept.

QUESTION 41

NONPROLIFERATION WORK WITH RUSSIA

GAS TURBINE-MODULAR HELIUM REACTOR

Chairman Pastor and Ranking Member Frelinghuysen. Could you update us on the status of the Gas Turbine-Modular Helium Reactor program with the Russians?

Mr. Black. The Gas Turbine-Modular Helium Reactor (GT-MHR) program is a 50/50 cost shared research and development program between Rosatom and DOE and is included in the Protocol that amends the Plutonium Management and Disposition Agreement (PMDA) as one of the technologies that may be used for plutonium disposition by either Party. With the assistance of U.S. technical experts, Russian Institutes have completed a preliminary design of the GT-MHR nuclear power plant; developed a bench-scale fuel fabrication facility that will eventually be capable of producing both uranium- and plutonium-based particle fuels; and fabricated and began testing a 30-foot scale model of a vertical turbine-machine that has the potential to improve the economics of a nuclear power plant. Future planned activities include the continuation of uranium and plutonium particle fuel process development, fabrication and testing; and continued development and testing of the vertical turbine-machine and its associated components. Rosatom has begun discussions with Russian utilities and other potential Russian industry users with the hope that such discussions will lead to commercial interest in developing a gas reactor program for both civil and plutonium disposition applications in Russia. According to the recently signed PMDA Protocol, "successful development of the GT-MHR may create additional possibilities for increasing the disposition rate in the Russian Federation in the 2019-2021 time-frame."

QUESTION 42

NUCLEAR DETECTION OVERSEAS

OVERSEAS NUCLEAR DETECTION SHIFT IN FOCUS

Chairman Pastor and Ranking Member Frelinghuysen. There is a large decrease in Megaports from $194 million in fiscal year 2010 to $125 million in the fiscal year 2011 request. Concurrently, there is a dramatic increase in Core Program work from $78 million in fiscal year 2010 to $140 million in the fiscal year 2011 request. What explains the shift in focus?

Mr. Black. Both components of Second Line of Defense (SLD) – the Megaports Initiative and the Core Program – carry out important nonproliferation work.
Recent opportunities to expand and accelerate our work in key Core countries that are closer to known inventories of nuclear material, in areas of high strategic interest, and/or where we know that illicit trafficking networks exist have resulted in an increase in funding levels for this part of the program. Since agreements with these countries are in place we have high confidence that this work can be effectively executed. In fact, increasing the number of sites where implementation is underway simultaneously will allow us to capitalize on economies of scale and reduce per site costs.

QUESTION 43

NUCLEAR DETECTION OVERSEAS

NUCLEAR DETECTION METRICS AND OUT-YEAR FUNDING

Chairman Pastor and Ranking Member Frelinghuysen. It is difficult to tell from your budget documents what work is supported by the fiscal year 2011 request and what the ultimate objectives are for these programs. Could you please provide to the Committee a table for both Core and Megaports that describes the number of ports and sites worked at and completed by year. This list should also include the end state of the program in terms of the number of ports and sites completed and completion dates. The funding profile contained in the budget request should be aligned to this information to display the proposed out-year work.

Mr. Black. Please see the Table below. This Table includes sites completed through FY09 and the number of ports and sites planned to be worked at and completed by year. Additionally, this Table includes the end state of the program in terms of the number of ports and sites completed and completion dates. All data is aligned to the funding profile from the FY 2011 Budget Request.

	Through FY09	**FY10**	**FY11**	**FY12**	**FY13**	**FY14**	**FY15**
FYNSP - Core Program		78,432	140,413	164,879	200,000	190,000	226,366
Core Sites Planned for Completion	308 (Completed)	55	55	56	75	75	26

FYNSP - Megaports Initiative		194,014	124,884	189,550	308,157	314,859	337,248
Megaports Planned for Completion	27 (Completed)	14	4	10	15	15	15
SLD Total FYNSP		272,446	265,297	354,429	508,157	504,859	563,614
SLD Total Sites per year		69	59	66	90	90	41
Cumulative SLD Sites	335	404	463	529	619	709	750

QUESTION 44

NUCLEAR DETECTION OVERSEAS

COORDINATING MECHANISMS FOR BORDER AND PORT SECURITY

Chairman Pastor and Ranking Member Frelinghuysen. What are the coordinating mechanisms used to ensure efficient cooperation between border and port security programs of the Department of Defense, Department of Homeland Security, Department of State, and the National Nuclear Security Administration?

Mr. Black. The Second Line of Defense (SLD) Program interacts with multiple offices and officials in the Departments of State (DOS), Defense (DOD), and Homeland Security (DHS) as well as the National Security Staff (NSS), and the Federal Bureau of Investigation (FBI), as part of its efforts to build international capacity to deter, detect, and interdict illicit nuclear and radiological trafficking. Key offices/programs with whom SLD routinely collaborates are listed below.

Both components of the SLD Program interact extensively with the DOS's Office of Export Control and Border Security (EXBS), the Nuclear Security Outreach Initiative (NSOI), and the Economic and Transport Bureau (EEB/TRA). The program also interacts with individual officials, Regional Bureaus, and Desk Officers for specific issues/countries as needed.

Both components of the SLD Program also coordinate closely with the DHS's Domestic Nuclear Detection Office (DNDO) on issues associated with the threat of nuclear terrorism, the tests/evaluation of radiation detection equipment, the development of model guidelines and standards, development and review of the nuclear detection architecture, and on specific regional programs, such as the Security and Prosperity Partnership of North America (SPP).

In addition, the SLD Core Program works with the Defense Threat Reduction Program (DTRA) and the Office of Cooperative Threat Reduction Policy (CTR) in DOD. Under the Core Program, DOE/NNSA also interacts with the Weapons of Mass Destruction Directorate in the FBI. The Megaports Initiative interacts extensively with DHS' Customs and Border Protection (CBP). As a partner with CBP on the Secure Freight Initiative (SFI) and a supporting partner in CBP's Container Security Initiative (CSI), the Megaports Initiative provides the radiation detection component of the integrated scanning requirement for SFI and provides radiation detection capability to augment non-intrusive imaging under CSI. The work of the Megaports Initiative also complements the efforts of CBP's Customs-Trade Partnership Against Terrorism

(C-TPAT) and the Coast Guard's International Port Security Program (IPSP), as well as the Proliferation Security Initiative (PSI).

The SLD Program participates in several interagency working groups designed to ensure that agencies are not duplicating efforts in the field of nuclear detection. For example, the SLD Program is a participant in the DOS-chaired working group on Nonproliferation Export Controls. The SLD Program is also a participant in the Nuclear Trafficking Response Group (NTRG), which is chaired by DOS and is responsible for facilitating the coordination of the U.S. Government response to all international-origin nuclear detection alarms. In addition, the SLD Program participates in the Maritime Security Working Group (MSWG) and the Maritime Security Interagency Policy Coordination (MSIPC), chaired by the NSS as well as the Trans-border International Policy Committee, also chaired by NSS.

QUESTION 45

NUCLEAR DETECTION OVERSEAS

MEGAPORTS PLANNING

Chairman Pastor and Ranking Member Frelinghuysen. Megaports works overseas to deploy radiation detection technologies at foreign ports to pre-screen cargo containers destined for the United States. How is the Megaports program approaching the goal of scanning 100% of the U.S. bound containers at foreign seaports?

What percentage of cargo containers destined for the United States is currently being scanned?

Mr. Black. We estimate that over 65% of cargo bound for the United States and almost 15% of global container traffic at our 30 operational Megaports is being scanned. By the end of FY 2010, our goal is operate at an additional 11 ports bringing the cumulative total to 41. At that point we will be scanning over 70% of U.S.-bound containers and over 20% of global container traffic. The goal of the Megaports Initiative has always been to scan as much container traffic at a port as possible (including imports, exports, and transshipped cargo) regardless of destination and with minimal impact on port operations. During the initial site survey, the Megaports team works with our foreign counterparts to identify the optimal locations for scanning as much container traffic at the port as possible. All direct exports to the United States are easy to capture by installing radiation portal monitors at the gates into the port. This can be done with minimal impact on port operations. Scanning U.S.-bound transshipped containers (i.e., those containers which arrive on one ship and depart on another without exiting the port gates) is one of the greatest challenges for the Megaports Initiative, because it is often difficult to identify chokepoints within the container terminals to place equipment without significantly impacting port operations. To address this challenge, the Megaports Initiative has developed innovative solutions to scan the maximum number of containers possible at heavy transshipment ports, including the use of mobile detection technologies and techniques such as selective scanning and quayside scanning. We also work closely with the Department of Homeland Security to support

scanning of U.S.-bound containers under the Secure Freight Initiative and the Container Security Initiative.

QUESTION 46

NUCLEAR DETECTION OVERSEAS

PRIORITIZATION OF MEGAPORTS

Chairman Pastor and Ranking Member Frelinghuysen. The Maritime Prioritization Model designed with Sandia National Laboratory established a tiered priority list of ports for security work. This is one tool for guiding the allocation of funds to ports. Are the ports requested in the fiscal year 2011 request in alignment with the prioritization list in terms of completing high-risk ports first?

What are some of the other tools and considerations you use to determine the ports that should receive installations first?

Mr. Black. We developed the Maritime Prioritization Model (MPM) to assist in the evaluation of candidate ports. The MPM tool helps us identify ports of potential interest based on: 1) the percentage of scannable throughput volume; and, 2) the global nuclear material smuggling threat. In determining our project prioritization, we use a port selection strategy that includes the MPM, as well as such factors as political stability and the security situation in the target country, and that country's readiness to participate in the program. A potential participant's interest in cost-sharing is also relevant. All this data is combined to generate a list of priority ports for potential Megaports implementation. Our prioritization list is continually updated to reflect the latest data on threats and port characteristics.

There are approximately 6000 ports within the global maritime shipping network, and over 700 ports ship containerized cargo directly to U.S. ports. Balancing resource constraints with the objective of achieving maximum risk reduction, the Megaports Initiative has identified over 100 ports of interest worldwide with the goal of scanning approximately 50% of global container traffic and over 80% of U.S.-bound container traffic by 2015. The ports identified for FY 2011 were selected for a number of reasons including a) the strategic location of the port (i.e. high risk or threat); b) the volume of container traffic at the port; c) whether there was an active Megaports agreement already in place or signature of a Megaports agreement was expected in the near term; and d) the willingness of the potential partner to cost-share on the installation.

QUESTION 47

NUCLEAR DETECTION OVERSEAS

MEGAPORTS COST-SHARING WITH DEVELOPED COUNTRIES

Chairman Pastor and Ranking Member Frelinghuysen. The Megaports program has installed radiation detection technologies at ports in a number of developed countries. What are the cost-sharing arrangements with these countries that can clearly afford to contribute to their own port security?

Mr. Black. Cost-sharing is a high priority for us because we are sensitive to Congressional concerns and because we are taxpayers ourselves, and we have no desire to see U.S. taxpayers fund projects that can and should be funded by other countries that can afford to contribute. Therefore, estimates on the number of ports with whom we are and with whom we expect to cost-share have been and will continue to be incorporated into our budget and operational planning and play an important role in our budget requests.

In the early days of the Megaports Initiative, we felt it necessary to build a support base for our program, and because several of the top 20 ports that ship directly to the United States were in European countries or other high-income countries, we agreed to pay for the initial installation as a proof of concept. Even at that time though, our position for the developed countries was that we would install radiation detection equipment at the first port, and the host nation would cost-share at any remaining ports. This approach has already been successfully utilized in Belgium and is underway in Spain.

Now that we have a strong support base for our program, we consider a country's willingness to cost-share when we are prioritizing countries and ports for engagement. We use the World Bank's classification of world economies to determine which countries should be candidates for cost-sharing, and this has become a negotiating point for us prior to implementation.

The primary dividend of cost-sharing is buy-in from the host government and terminal operator, but cost-sharing with another government does have its challenges. It can add schedule risk and, potentially, quality risk. Although no set formula for cost-sharing is available, the terminal operator and/or port authority often pays for design, construction, engineering, installation, or a combination of those costs. The host government may also pay these costs, but cost-sharing arrangements are site-specific and negotiated differently for each port.

To date, cost-sharing has proven successful in Belgium, Colombia, Israel, Mexico, the Netherlands, and Panama, and we are also looking to cost-share in the near-term with Italy, Spain, and the United Arab Emirates (Dubai). Of course, the most rewarding example of cost-sharing to date is demonstrated by Dutch Customs in the Netherlands. In 2004, the Megaports Initiative installed four radiation portal monitors (RPMs) at the Port of Rotterdam as part of a pilot demonstration for Dutch Customs to demonstrate the feasibility of monitoring container cargo. In 2007, Dutch Customs replaced the U.S. RPMs and installed 40 sets of RPMs to monitor all import and export containers at the Port of Rotterdam. This $40M Dutch investment

demonstrates the proof of concept for successful cost-sharing and is the model for which the program is striving in other locations that can afford it.

QUESTION 48

NUCLEAR DETECTION OVERSEAS

MEGAPORTS AGREEMENTS

Chairman Pastor and Ranking Member Frelinghuysen. The completion of Megaports work depends on access agreements with foreign partners. Are agreements in place with the countries you plan to partner with in fiscal year 2011?

Mr. Black. The Megaports Initiative is at varying stages of engagement with countries in Africa, Asia, Europe, the Middle East, Latin America and the Caribbean. As prospective partners sign agreements and funding becomes available, we re-prioritize our fiscal year planning. Currently, for FY 2011, we are working to complete the Port of Barcelona since we already have an agreement with the Government of Spain, and it will be completed under a cost-sharing arrangement with Spain. Additionally, we expect to complete the Port of Jebel Ali, which will also be conducted under a cost-sharing arrangement with Dubai Customs. We recently signed an agreement with Cambodia and expect to finish the installation at the Port of Sihanoukville. Finally, we expect to complete the Port of Gioia Tauro, Italy, which will also be conducted under a cost-sharing agreement with the Italian Government. We are hoping to sign agreements with the Governments of Argentina and Vietnam in the near term, and work at those ports is expected to begin in FY 2011.

QUESTION 49

NUCLEAR DETECTION OVERSEAS

MEGAPORTS DETECTION TECHNOLOGIES

Chairman Pastor and Ranking Member Frelinghuysen. The Government Accountability Office has looked at detection technologies and, specifically, the Advanced Spectroscopic Portal (ASP) monitors. It concluded ASPs have shown potential as a screening technology but require further testing by the Department of Homeland Security's Domestic Nuclear Detection Office. Is the Megaports program planning to deploy any ASPs in fiscal year 2011?

Have you tested ASPs and what is your assessment of them? Are you still primarily deploying polyvinyl toluene (PVT) monitors? Do you have plans to change portal monitor technologies in the future?

Mr. Black. We conducted a series of threat injection studies with the Domestic Nuclear Detection Office (DNDO) at Los Alamos National Laboratory (LANL) in January 2008 on several systems, and we conducted some outdoor Concept of Operations tests on Canberra and

Thermo units in March 2008. In addition, we have also tested other spectroscopic portal monitors (SPM) including the Totem Plus Radioactive Materials Detection System and the SAIC ST-20. We have plans in FY 2010 to retest the Thermo, Canberra, and Raytheon ASPs, and are considering testing an Ortec SPM.

Our general assessment has been that ASP/SPMs are not appropriate for a primary radiation scan application. We have only considered deploying them as secondary screening tools. In that application, they have the potential to be a useful tool for isotope identification and alarm resolution to complement and potentially improve on the handheld equipment we currently use. We will continue to deploy PVT monitors in primary screening applications.

In FY 2010, we plan to deploy Thermo advanced spectroscopic portals (ASP) to Malaysia, Taiwan, and possibly Spain. We also currently own 5 Canberra units that we received from DNDO, but any deployment of those units will be dependent on the results of testing at LANL.

QUESTION 50

NUCLEAR DETECTION OVERSEAS

MEGAPORTS SUSTAINABILITY

Chairman Pastor and Ranking Member Frelinghuysen. The fiscal year 2011 request proposes 4 additional ports, bringing the total to 29 ports since the program initiated in 2003. Are sustainability issues arising at the ports where installations have been completed-i.e. are components wearing out?

If so, what is your role, if any, in supporting the sustainment efforts? If so, what specific aspects of Megaports installations are requiring sustainment efforts first?

Mr. Black. We are receiving service requests for installed SLD systems. To date, these service requests do not indicate that hardware "components are wearing out;" instead, most service requests are related to software stability and system interface challenges.

SLD's Sustainability Program is designed to ensure the long-term operation and maintenance by Partner Countries of SLD-deployed systems. To this end, SLD works closely with Partner Countries to develop the necessary indigenous capabilities to enable them to sustain their system. SLD provides training experts, maintenance technicians, and Help Desk support to Partner Countries during the transition period while they assume fully the requisite operational and sustainment responsibilities.

To date, the Megaports Program has service requests for items related to software (48%), hardware (24%), and operational requests (28%). These service requests are dealt with through SLD's Help Desk. The primary software-related service requests concern information system interfaces, data processing, and storage challenges for port information. The cause of most of the hardware-related service requests include power supply component failures due to poor quality

electrical service and electronic component failure due to the typically demanding environmental conditions present at some port facilities (e.g. high humidity). The remaining operational requests include refresher training, replacement parts, desiccant inventory replenishment and logistical support for equipment delivery. We also work with the National Laboratories, equipment vendors, and Partner Countries to ensure that lessons learned and technical findings from these service requests are incorporated into system design requirements for future deployment improvements.

QUESTION 51

NUCLEAR DETECTION OVERSEAS

BORDER SECURITY OVERSEAS

Chairman Pastor and Ranking Member Frelinghuysen. The Second Line of Defense "core" program is responsible for deploying radiation detection equipment at vulnerable transit and border crossings throughout the world, particularly in Russia and the former Soviet Union. The fiscal year 2011 request of $140 million is a $62 million increase over fiscal year 2010. What criteria do you use to prioritize the sites where you plan to install detection equipment?

How long will it take you to spend out this significant increase? [If the answer is that the funding will take more than one year to be spent.] If it will take more than one year, why should we provide it all now? Why not wait until the year that it can all be used? [If the answer is that the funding can all be used this year.] An 80 percent increase raises real questions that the funds can be spent responsibly. How is the program set up so that we can be sure that the funds are being used efficiently and for the purposes for which they were provided? What specifically is the oversight plan to ensure that these facilities are operating correctly once they are installed? Do we have continued access to all of these sites?

Mr. Black. Site selection for FY11 is based on project plans jointly agreed to with our host country partners. Prioritization, from the U.S. perspective, is based on research from our national laboratories considering the site's proximity to source material, known smuggling routes, and corruption factors, as well as inputs from other U.S. agencies. The Program also consults with border security experts in the host country to refine the list of sites to be considered for installation of fixed equipment. The site lists are reviewed and updated each year as the SLD project team and the host governments address changing conditions and re-assess priorities.

The additional funding allows the Second Line of Defense Core Program to remain engaged and actively working in all countries with which it currently has an agreement. SLD Core plans to commit all of the requested funding in FY11. In FY11, The Second Line of Defense Core Program will begin installation of fixed radiation detection equipment at 55 sites in 17 countries, provide operator training on these systems, provide mobile detection equipment and training to law enforcement agencies in four countries, and continue with or initiate integration of radiation detection systems into country-wide national alarm centers in three countries. Agreements are in place that will allow the full expenditure of the planned FY11 Funding. In addition, SLD Core will fund maintenance and sustainability of about 200 systems in approximately 20 countries to

include training of maintenance providers and on-going operator training and train-the-training programs to address personnel turn-over. These activities are expected to require the full $140M in FY11

SLD Core is confident it can spend the funding responsibly. To implement and manage the increased funding, DOE/NNSA has in place a multi-year contract with three contractor teams who provide design, integration, construction, communications, and engineering (DICCE) support for implementation of the SLD Program. This is a task order contract under which the contractors compete for work in each country. With a combined ceiling of $700M, and a seven-year period of performance that began in October 2007, we feel we are well-positioned to implement this accelerated effort. The program will also be procuring new monitors for which it requires additional funding.

SLD Core engages in a number of sustainability efforts to ensure the continued operation of the systems it provides. These efforts include comprehensive training programs that include operator training and refresher training as well as train-the-trainer programs that provide host governments the ability to continue these vital programs. SLD Core also commits to provide maintenance on installed systems for up to three years. For some countries in which their funding is severely constrained, sites are maintained for a longer period. SLD provides transition planning and assistance to host governments when and were needed. Lastly, the Program has implemented a system of assurance visits to sites previously transitioned to host government operation. These visits allow the Program to be assured the equipment provided is still being used effectively and to recommend physical upgrades or additional training activities to enhance the operation or address changed site conditions. This activity originated with the Core work in Russia and is now being rolled out to all SLD Core and Megaports countries.

Site access to locations where SLD is expending funds is a requirement of the agreement with each host government and it is coordinated and granted on a per request basis. When properly coordinated, SLD program officials have not been denied access to sites.

QUESTION 52

COUNTRY-SPECIFIC QUESTIONS

CHINA

Chairman Pastor and Ranking Member Frelinghuysen. Please provide the list of Defense Nuclear Nonproliferation programs currently engaged with China on nonproliferation issues.

Mr. Black. DNN programs engaged in China include: Megaports Initiative, Material Protection, Control & Accounting (MPC&A), Global Threat Reduction Initiative (GTRI), International Nuclear Safeguards and Engagement Program (INSEP), International Nonproliferation Export Control Program (INECP), and Confidence Building Measures Program (CBMS).

Under a cost-sharing arrangement, GTRI is currently working with China to construct a zero power test facility at the Chinese Institute of Atomic Energy (CIAE) complex to perform LEU fuel qualification measurements to support the safe conversion of 3 Miniature Neutron Source Reactors (MNSR) in China (one of the Chinese MNSRs shut down in 2007) and five Chinese-supplied MNSRs in Ghana, Iran, Nigeria, Pakistan and Syria, to operate with LEU fuel.

The INSEP engages with China through the 1998 PUNT agreement on safeguards technology development and implementation, and has co-sponsored (with the IAEA and China) four regional Facility Systems of Accounting and Control (FSAC) courses. Current engagement is aimed at building China's indigenous safeguards capacity and strengthening its interest in supporting the IAEA through regional outreach. The focus of cooperation with China is shifting toward areas of high international safeguards interest such as safeguards for reprocessing and gas centrifuge enrichment plants and development of safeguards approaches for new reactor types.

The INECP has been an active partner in China's strategic trade control/export control development since 2003. Since then, INECP has held more than 10 events and 8 meetings related to the nonproliferation of nuclear commodities through enforcement/interdiction, licensing, and industry best practices. Partnering with China has increased China's export control capabilities, built a relationship of mutual trust and openness, and established a foundation of cooperation for mutual benefit.

The CBMS will fund a Track II workshop on nonproliferation nuclear forensics. The workshop, which is scheduled for summer 2010, is a follow-on to a workshop that was co-hosted by the U.S. National Academy of Sciences' Committee on International Security and Arms Control (CISAC) and its China counterpart organization, the Chinese Scientist Group on Arms Control (CSGAC), in August 2009. Deputy Secretary Poneman met with Chinese counterparts in December 2009 and expressed interest in bilateral cooperation on nuclear forensics. At this time, cooperation will continue at the Track II level to provide a basis for potential Track I engagement.

QUESTION 53

COUNTRY-SPECIFIC QUESTIONS

INDIA

Chairman Pastor and Ranking Member Frelinghuysen. Please provide the list of Defense Nuclear Nonproliferation programs currently engaged with India on nonproliferation issues.

Mr. Black. DNN programs engaged in India include: the Office of International Regimes and Agreements, Megaports Initiative, and Material Protection, Control & Accounting (MPC&A).

The Office of International Regimes and Agreements has represented the Department of Energy in all negotiations with the Government of India and in the Nuclear Suppliers Group on the U.S.-India Peaceful Nuclear Cooperation Agreement, signed on October 10, 2008, including the negotiations on Arrangements and Procedures governing the reprocessing of U.S.-obligated

nuclear material in India. Upon signature and entry into force, the Arrangements and Procedures will enable reprocessing by India of United States-obligated nuclear material, subject to International Atomic Energy Agency safeguards, at a new facility to be established by India. These Arrangements and Procedures will facilitate participation by United States firms in India's expanding civil nuclear energy sector. Once a facility is built, the Office of International Regimes and Agreements' Physical Protection Program will work with the Government of India to ensure that all U.S.-obligated nuclear material at that facility will be held in accordance with the requirements of U.S. law. The Office also has been a central participant along with the Office of International Material Protection and Cooperation in discussing with India the creation of a Center of Excellence for nuclear security, announced by the Indian Prime Minister at the recently completed Nuclear Security Summit. Finally, in cooperation with the Department's Office of Nuclear Energy, the Office of International Regimes and Agreements has participated in the three meetings thus far of the U.S.-India Civil Nuclear Energy Working Group. The most recent meeting, in Mumbai in February, made important progress in advancing the cooperative vision of the U.S.-India Civil Nuclear Cooperation Initiative.

QUESTION 54

COUNTRY-SPECIFIC QUESTIONS

IRAN

Chairman Pastor and Ranking Member Frelinghuysen. Iran continues to cause concerns with its nuclear activities. What support is your organization providing the U.S. interagency effort to monitor and press the Iranians to adhere to nonproliferation norms?

Mr. Black. DOE/NNSA's Office of Nonproliferation and International Security has long supported several U.S. activities related to Iran's nuclear program and its attempts to procure and proliferate WMD technologies and commodities.

Each year, DOE reviews hundreds of foreign procurements potentially related to Iran. We develop watch lists of commodities that Iran is seeking for its nuclear program and provide export control assistance and training to government licensing officials, enforcement officers, and key industries in countries around the world in order to stem the flow of strategic, dual-use goods necessary for Iran's nuclear program.

DOE also provides unclassified technical briefings on an annual basis to the IAEA and Participating Governments of the Nuclear Suppliers Group on advancements that Iran is making in its nuclear program, including specific items that Iran is seeking to procure.
Finally, DOE supports U.S. interagency studies and analyses on Iran nuclear issues, participates in international technical assessment meetings focused on Iran's nuclear activities, and develops technologies and equipment to support IAEA safeguards and verification.

NNSA has also provided expert input on technical options for fabricating fuel for the Tehran Research Reactor (TRR) and for securing supplies of the critical medical isotope ^{99}Mo on the

world market in quantities sufficient for Iran's medical needs so that Iran does not argue that it requires its own enrichment program.

QUESTION 55

COUNTRY-SPECIFIC QUESTIONS

CRITICISMS OF THE INTERNATIONAL ATOMIC ENERGY AGENCY

Chairman Pastor and Ranking Member Frelinghuysen. The International Atomic Energy Agency (IAEA) has come under some criticism for their approach to the Iranian nuclear crisis.

What is your evaluation of their approach? What should they be doing differently? Would you characterize the approach the United States is taking on Iran as cooperative with the IAEA?

Mr. Black. The IAEA should be commended for its earnest and professional efforts to resolve the long list of safeguards questions and concerns surrounding Iran's nuclear activities. Unfortunately, Iran is not providing full and comprehensive cooperation with the IAEA as it is required. The Agency's investigation is now well into its seventh year, and Iran has yet to provide the information and access necessary to address the IAEA's serious questions, particularly regarding Iran's past nuclear warhead development program and, more recently, the disclosure of a previously undeclared enrichment plant located underneath a mountain on a military base near the Iranian city of Qom. Iran also has failed to take advantage of an IAEA proposal to exchange 1,200kg of Iranian LEU for fresh fuel for the Teheran Research Reactor. We are committed to providing the IAEA with the support it needs to carry out its important mandate.

IAEA Director General Amano's February 18, 2010 report on Iran to the Board of Governors – his first since assuming the position of Director General – provided a much harsher assessment of Iran's compliance with its safeguards obligations than previous IAEA reports. In addition to documenting Iran's repeated refusals to cooperate with the IAEA's ongoing investigation (since February 2006) of nuclear activities in Iran with possible military dimensions, the report highlights poor Iranian cooperation on several new issues of concern; Iran did not provide adequate notification to the IAEA of its intent to move low enriched uranium (LEU) from the Natanz Fuel Enrichment Plant (FEP) to the Pilot Fuel Enrichment Plant (PFEP), began further enriching LEU to 19.75% before the IAEA could implement necessary additional safeguards measures at PFEP, denied IAEA requests to sample material in hundreds of drums said by Iran to contain heavy water, and informed the IAEA that it had conducted pyroprocessing research into the electrochemical production of uranium metal. We very much appreciate DG Amano's straightforward approach to Iran, and will encourage the IAEA to continue its technically-oriented and transparent handling of the Iran issue.

QUESTION 56

COUNTRY-SPECIFIC QUESTIONS

PAKISTAN

Chairman Pastor and Ranking Member Frelinghuysen. Please provide the list of Defense Nuclear Nonproliferation programs currently engaged with Pakistan on nonproliferation issues.

Mr. Black. DNN programs engaged in Pakistan include: the International Nonproliferation and Export Control Program (INECP) and the Megaports Initiative.

INECP currently engages with Pakistani customs officials on commodity identification training. This training familiarizes customs inspectors and others with WMD-related materials and equipment in order to interdict illicit shipments. INECP has had excellent cooperation with Pakistan since 2004. Pakistan has taken a number of steps since 2004 to strengthen the integrity of their export control system, and in some instances has taken a leadership role in the region.

QUESTION 57

COUNTRY-SPECIFIC QUESTIONS

SOUTH AFRICA

Chairman Pastor and Ranking Member Frelinghuysen. Please provide the list of Defense Nuclear Nonproliferation programs currently engaged with South Africa on nonproliferation issues.

Mr. Black. DNN programs engaged in South Africa include: Megaports Initiative, Global Threat Reduction Initiative (GTRI), the Office of Nonproliferation and International Security, International Nuclear Safeguards and Engagement Program (INSEP), International Nonproliferation and Export Control Program (INECP).

GTRI is working with South Africa on the following projects:

- Upgrading physical protection for nuclear materials stored at the Pelindaba nuclear site.
- Providing direct funding and in-kind support to the International Atomic Energy Agency's Nuclear Security Fund to support radiological security upgrades prior to the World Cup.
- Returning 6.3 kilograms of U.S.-origin HEU spent fuel to the United States for secure storage and disposition in early 2011
- Working with NTP Radioisotopes, a subsidiary of the Nuclear Energy Corporation of South Africa (NECSA), to convert the production of medical isotopes from the use of highly enriched uranium (HEU) to low enriched uranium, and to support a study group to evaluate and downselect technologies to minimize HEU wastes attributable to medical isotope production.

Initial discussions have begin on the disposition of South African-origin HEU and agreement was reached with South Africa during the Nuclear Security Summit to establish a U.S.-South African technical working group to develop the cost and technical modalities associated with removal of the South African-origin spent HEU fuel.

In response to an invitation by South Africa, a U.S. interagency team of physical protection experts, led by the Office of Nonproliferation and International Security, will visit the Pelindaba Nuclear Research Centre on April 21-23, 2010, to assess the physical protection of the U.S.-obligated nuclear material provided to South Africa. Such visits are required by Section 305 of the 1978 Nuclear Nonproliferation Act (NNPA) and the 123 Agreement for Peaceful Nuclear Cooperation. Periodic physical protection visits to countries with U.S.-obligated nuclear material are a principal means of ensuring that U.S. nuclear material is adequately protected in line with internationally agreed standards.

Another area of U.S.-South Africa engagement is physical protection training. As required by the 1978 NNPA, the United States provides physical protection training to persons in all states that have developed or acquired, or may be expected to develop or acquire, nuclear materials and equipment for use for peaceful purposes. In the case of South Africa, this requirement is fulfilled by conducting physical protection trainings together with the International Atomic Energy Agency.

INSEP strengthens international nuclear safeguards by improving nuclear material accountancy and control and promoting secure and sustainable nuclear infrastructure through collaboration with international partners. Since 2006, cooperation between INSEP and South Africa on international safeguards ceased (with the exception of one visit in 2008) after SAG repeatedly refused to conclude a safeguards cooperation agreement with DOE/NNSA. On March 15, representatives from NNSA HQ, U.S. National Laboratories, and DOE South Africa met with NECSA to discuss re-initiating safeguards cooperation.

INECP currently engages with South African customs officials on commodity identification training (CIT) and technical discussions for training customization. This training familiarizes customs inspectors and others with WMD-related materials and equipment in order to interdict illicit shipments. In May 2009, South Africa officially agreed to collaborate on CIT. This breakthrough follows South Africa's observance of an Argentine-led trilateral CIT in December 2007.

Following the most recent round of the U.S.-South Africa Nonproliferation and Disarmament Dialogue initiated by Special Advisor Einhorn, representatives from DOE/NNSA and U.S. National Laboratories met with DOE South Africa and NECSA in March 2010 to discuss re-initiating safeguards cooperation and initiating cooperation on nuclear forensics. During these meetings, DOE South Africa and NECSA expressed strong interest in nuclear forensics collaboration, in particular to strengthen joint efforts to prevent illicit trafficking of nuclear and radiological material. NA-24's Confidence Building Measures program is planning a follow-on meeting of experts tentatively scheduled for July 2010 to develop a path forward for implementation of cooperation beginning early next fiscal year.

QUESTION 58

COUNTRY-SPECIFIC QUESTIONS

FOLLOW-ON TO OPERATIONS IN IRAQ AND LIBYA

Chairman Pastor and Ranking Member Frelinghuysen. Successful U.S. Government operations have removed nuclear materials and nuclear-related technologies from Iraq and Libya. Are NNSA programs still conducting work in Iraq and Libya?

If so, what activities will still be supported in fiscal year 2011?

Mr. Black. NNSA's Cooperative Border Security Program (CBSP) has been providing capacity building assistance to Iraq's Department of Border Enforcement (Ministry of Interior) to strengthen the country's border controls – with initial focus on the Iraq-Iran (286km sector) and Iraq-Syria (402km sector) border. CBSP's engagement with Iraq directly coincides with Iraq's request for assistance under UNSCR 1540. These initial steps toward a national border strategy will increase effectiveness and capability system-wide.

In addition, in FY 2011, NNSA's Global Initiatives for Proliferation Prevention (GIPP) program will continue to support scientist engagement in Iraq through workshops and training, business development activities, support of an environmental testing laboratory located in Baghdad, and small-scale civilian science projects through the Iraq Research and Development Initiative (IRDI), a partnership with the Department of State. These small-scale projects will focus on improvements in material science, public health, water, energy and the environment. GIPP funding for Libyan engagement ended in FY08 and GIPP is completing all engagement efforts there this fiscal year.

Finally, NNSA's Next Generation Safeguards Initiative will continue outreach to Iraq on effective implementation of the IAEA's Additional Protocol (AP). These activities will build on the initial May 2010 workshop, to be conducted jointly with the IAEA, which will provide specific training and technical consultations for the preparation of Iraq's initial AP declaration. Follow-on activities will include training on NNSA's AP Declaration Helper Software, AP-specific outreach to Iraqi policymakers and industry, export control training, and the development of an AP "train-the-trainer" program. NNSA has offered similar AP outreach to Libya in the past but has never received a positive response. This offer will be resubmitted to Libya for consideration in FY2011.

QUESTION 59

COUNTRY-SPECIFIC QUESTIONS

NORTH KOREA

Chairman Pastor and Ranking Member Frelinghuysen. The fiscal year 2010 bill provided funds to prepare for the dismantlement of the North Korean nuclear program. Negotiations have since broken down. You requested no funding for this activity in the fiscal year 2011 request. What is the latest status of the negotiations with North Korea?

What activities do the fiscal year 2010 funds support in light of these setbacks? What was the state of the North Korean complex when we were "asked" to leave? Will the Department secure all long lead-time equipment necessary should negotiations allow re-entry into North Korea?

Mr. Black. The United States and our partners in the Six-Party Talks – Japan, the Republic of Korea, China, and Russia – remain committed to achieving the verifiable denuclearization of the Korean Peninsula in a peaceful manner.

We remain committed to cooperating closely with our allies and partners in the pursuit of regional peace and security and will consult closely with the Republic of Korea and the other Five-Party members in determining the next steps. We have made it clear to North Korea that if it is serious about negotiations, it should take concrete steps toward irreversible denuclearization in fulfillment of the 2005 Joint Statement, comply with international law including UN Security Council Resolutions 1718 and 1874, cease provocative behaviors, and take steps to improve relations with its neighbors.

In the meantime, we will continue to implement UN sanctions on North Korea fully and transparently in order to curb its proliferation-related activities and convince North Korea to take irreversible and verifiable steps to denuclearize. The United States is pursuing new, country-specific sanctions on North Korea that will expand and strengthen our work under existing authorities to identify, pressure, and put out of business DPRK entities involved in proliferation and other illicit practices.

However, we continue to prepare for an eventual return to denuclearization activities in North Korea, when and if an agreement with North Korea is reached. We have continued to develop specific capabilities to ensure irreversible denuclearization steps can be taken, including measures to irreversibly dismantle facilities, verify past nuclear activities, and remove sensitive nuclear-related equipment and nuclear materials.

U.S. monitors and IAEA inspectors were asked to depart from North Korea in mid-April 2009. At that time, the United States had overseen the completion of eight out of eleven agreed disablement actions and was approximately 80% complete with the ninth action, the discharge of spent fuel from the reactor, at the time we were told to depart.

The Department has since endeavored to develop or procure as many long-lead time items needed for eventual denuclearization as possible during and prior to FY2010. While we cannot say that the Department will have achieved a full stand-by readiness capability to undertake all aspects of denuclearization, we have attempted to assemble and develop as much of the capability as possible to meet the most probable prioritized denuclearization activities. We will

continue to refine our plans and capabilities to meet this challenge and be as ready as possible to undertake it, within current programmatic and fiscal priorities.

QUESTION 60

NONPROLIFERATION RESEARCH AND DEVELOPMENT

RESEARCH AND DEVELOPMENT FOR TREATY MONITORING

Chairman Pastor and Ranking Member Frelinghuysen. The Nonproliferation Verification and Research and Development program requested $352 million in fiscal year 2011, $34 million above fiscal year 2010. Within this amount, Proliferation Detection received a $43 million increase over fiscal year 2010. Much of the increase is in the Nevada Test Site facility to test and evaluate new technologies to support treaty verification. The rest of the nonproliferation research and development was a flat budget request. Why did you conclude treaty verification technologies are a better investment than other aspects of the research and development program?

Mr. Black. We did not come to that conclusion. Much of our existing research and development effort was already aligned with treaty verification technology development and the additional funding will provide an important boost in support of this Administration's renewed interest in arms control. The funding we plan to focus at the Nevada Test Site complements existing programs for fissile material production detection; global safeguards; special nuclear material detection, remote sensing, weaponization detection, ground-based nuclear monitoring, and signatures and observables, to name a few. Additionally, this funding allows the program to specifically respond to emerging technical challenges associated with the Administration's intention to seek ratification of the CTBT, to pursue deeper reductions in U.S. and Russian strategic offensive arms in the New START Treaty, to advance a "verifiable" Fissile Material Cutoff Treaty (FMCT), to strengthen the Nuclear Nonproliferation Treaty (NPT), and to work toward the ultimate elimination of nuclear weapons. Science and technology play a central role in pursuit of these goals. Verification of some of the measures being discussed, such as limitations on non-deployed warheads or sequestering of fissile material worldwide, present daunting problems for both policy and technology. Many of the procedures and technologies used in the past for verification of arms control treaties will be inappropriate or inadequate to meet future challenges. The NTS, in partnership with the national laboratories and other centers of expertise, can contribute to U.S. policy initiatives in arms control and nonproliferation through development and testing of advanced technologies in a wide range of areas, as indicated above.

Chairman Pastor and Ranking Member Frelinghuysen. Ensuring the United States is fielding the most advanced nuclear detection technologies is a top priority. A homeland security-related add of $50 million has been included in the last three fiscal year budget requests. Is this flat funding sufficient to advance detection technologies for homeland security and nonproliferation purposes?

Mr. Black. The Homeland Security-related NON-add of $50 million, which has been included in the R&D fiscal year budget requests since FY07 is not intended to communicate an additional $50 million for R&D. It is meant to convey in the budget table that approximately $50 million out of the entire R&D budget is allocated to efforts that are related to Homeland Security missions. The Proliferation Detection (PD) program conducts fundamental research in fields such as radiation detection, and in this way it provides tools and support to the Department of Homeland Security (DHS) and the Intelligence Community, that are applicable to Homeland Security objectives.

Chairman Pastor and Ranking Member Frelinghuysen. What confidence do you have that all of this funding can be well spent in one fiscal year?

Mr. Black. We have high confidence that this funding can be well executed in FY11. The FY11 funds will be spent to:

- Continue development of interagency- and multi-lab-coordinated test planning of nuclear nonproliferation, treaty verification and arms control experimentation spirals
- Improve infrastructure to improve support nuclear nonproliferation missions and prepare sites for experimentation or occupancy
- Execute multi-lab experimentation spirals at NTS in support of nuclear nonproliferation, arms control, treaty verification, monitoring, safeguards, and forensics
- Complete development of 5-year roadmap for leveraging the uniqueness of NTS for supporting nuclear nonproliferation missions.

QUESTION 61

NONPROLIFERATION RESEARCH AND DEVELOPMENT

EXPERTISE FOR NONPROLIFERATION RESEARCH AND DEVELOPMENT

Chairman Pastor and Ranking Member Frelinghuysen. Are you attracting the necessary expertise to support your research and development programs? What is the status of the Integrated University Program?

Mr. Black. In 2009 and 2010, NNSA, DOE/NE, and the NRC coordinated their respective pieces of the Integrated University program as described in our annual report to Congress, "Report to the House and Senate Appropriations Committee on the Integrated University Program, Department of Energy – Office of Nuclear Energy, National Nuclear Security Administration – Office of Defense Nonproliferation, Nuclear Regulatory Commission, September 30, 2009." This coordination has included twice annual meetings for discussing program status updates and areas of emerging technical emphasis; describing the type, duration, and targets of awards, fellowships, and scholarships; comparing university awardees; and collaborating on metrics to measure progress and success. Since the IUP began, NNSA has awarded $25 M through 48 grants to 30 universities. For NNSA, the IUP focuses on exposing students and early career faculty, that is, the next generation researchers, to nuclear nonproliferation and security applications as a context and motivation for their pursuing a career in this important area. Thus, the number of U.S. students supported under a nuclear nonproliferation and security-related research proposal is an important metric in the selection process. NNSA also supports universities indirectly through collaborative efforts with the National laboratories and directly through the Broad Area Announcement process. Thus far, we have been able to attract the necessary technical expertise to support our R&D program. However, we are dependent on the health of the entire national security complex and the rest of the DOE national laboratory system.

QUESTION 62

NONPROLIFERATION RESEARCH AND DEVELOPMENT

KARNAC

Chairman Pastor and Ranking Member Frelinghuysen. In fiscal year 2010, Congress provided $6 million for NNSA to work with the Air Force on a system to ensure the safety of our space operations. This program is now called KARNAC (Knowledge Assimilation and Reasoning for National Awareness of Counterspace threats). Could you update the subcommittee on the status of this program?

Mr. Black. KARNAC is a demonstration of an approach to improving Space Situational Awareness through a combination of sensors, high-performance computing, space subject matter expertise, and advanced modeling and simulation tools. It is in our budget in part because of the sensors we develop and provide to the Department of Defense for some of its satellites. The

program is a classified effort, but I'm told it has also played a worthwhile role in helping maintain space expertise at the national laboratories.

Chairman Pastor and Ranking Member Frelinghuysen. How much funding is included in this request?

Mr. Black. None

Chairman Pastor and Ranking Member Frelinghuysen. Why not?

Mr. Black. At the time that we formulated the budget request, we had been told by KARNAC program managers that there would be no need for FY11 funding for this particular work scope.

QUESTION 63

NONPROLIFERATION RESEARCH AND DEVELOPMENT

WORK FOR OTHERS

Chairman Pastor and Ranking Member Frelinghuysen. A Memorandum of Understanding exists between NNSA, the Department of Homeland Security (DHS), the Department of Defense, and the Office of the Director of National Intelligence in the research area of proliferation detection. The participants place demands on many of the same capabilities at the national laboratories. Are there capabilities unique to nonproliferation that are currently over-subscribed?

If yes, what are they?

If yes, are the costs recovered or reimbursed sufficient to maintain and, when necessary, expand capacity for the over-subscribed capabilities?

Mr. Black. Capabilities important to nonproliferation are not currently oversubscribed at the national laboratories. Under the referenced MOU, the Domestic Nuclear Detection Office, the Defense Threat Reduction Agency, and NNSA's Office of Nonproliferation and Verification Research and Development (NA-22) coordinate frequently, including for review of each others' calls-for-proposals, reviewing the proposals for merit, participating in each others' funding decision meetings, and attending each others' program and project reviews. Additionally, we meet regularly with representatives from the White House Office of Science and Technology Policy to receive additional strategic guidance and to coordinate our proliferation detection and interdiction research areas and program planning schedules. Through the above processes, we deconflict tasks within similar proposals to align with our respective mission goals, and where the organizations share common interests, we combine resources in ways to accelerate development.

QUESTION 64

STATUS OF NONPROLIFERATION TREATIES

NEW START WITH RUSSIA

Chairman Pastor and Ranking Member Frelinghuysen. What is the status of the new START agreement to reduce the U.S. and Russian nuclear stockpiles?

Mr. Black. On April 8, 2010, in Prague, President Obama and Russian President Medvedev signed the New START Treaty. The new Treaty establishes limits of: 1,550 for deployed strategic warheads; 700 for deployed intercontinental ballistic missiles (ICBMs), deployed submarine-launched ballistic missiles (SLBMs) and deployed heavy bombers; and 800 for deployed and non-deployed ICBM launchers, deployed and non-deployed SLBM launchers and deployed and non-deployed heavy bombers. These numbers represent aggregate limits that are more than 50% lower than the limit for deployed strategic nuclear delivery vehicles established in the 1991 START Treaty, which expired in December 2009. Upon entry-into-force, the New START Treaty will supersede the 2002 Strategic Offensive Reductions Treaty (the Moscow Treaty), and provides for a deployed warhead limit that is 30% lower than the warhead limit established by the 2002 Moscow Treaty. The Treaty has a ten-year duration, with completion of reductions required seven years after entry into force, and includes a verification regime based in part on the experiences gained by the United States and Russia through the implementation of the 1991 START Treaty. The New START Treaty demonstrates the continuing commitment of the United States and Russia to reduce their nuclear arms consistent with their obligations under the Nuclear Non-Proliferation Treaty, and will set the stage for future discussions on further reductions in global nuclear stockpiles and materials.

QUESTION 65

STATUS OF NONPROLIFERATION TREATIES

COMPREHENSIVE TEST BAN TREATY

Chairman Pastor and Ranking Member Frelinghuysen. The Administration has stated the Comprehensive Test Ban Treaty (CTBT) is a priority in its nonproliferation agenda. What is the latest status of the negotiations?

What contribution is your organization making to this effort?

Mr. Black. International negotiations for the Comprehensive Nuclear-Test-Ban Treaty (CTBT) were completed in 1996, and the United States was the first signatory to the Treaty in September 1996. The Administration has signaled its intention to seek advice and consent to ratification of the Treaty from the U.S. Senate at the appropriate time, and the Office of Defense Nuclear Nonproliferation is working with other U.S. agencies to address concerns that might arise during the Senate ratification process.

The United States is an active participant in the Preparatory Commission for the CTBT Organization, including its Working Groups, whose mandate is to carry out the necessary preparations for the effective implementation of the Treaty. The President's budget request supports implementation and verification by sustaining and improving U.S. National Technical Means that ensure viable independent treaty verification. The Office of Defense Nuclear Nonproliferation produces satellite sensor payloads, develops seismic analysis methods, and provides technical support. These efforts are closely coordinated with the Departments of Defense and State and the Director of National Intelligence to ensure the highest priority needs are emphasized. After an interagency clearance process, resources in support of U.S. National Technical Means (e.g., technical experts or specific technology and scientific advances) are selectively made available to support the CTBT verification regime.

The Office of Defense Nuclear Nonproliferation also assists with the evaluation of any possible technical advantages other States Parties might gain by evading the Treaty; provides, as part of the interagency process, policy development and technical contributions to Preparatory Commission activities such as the establishment, sustainment, and operation of the International Monitoring System, the elaboration of the On-Site Inspection program, and other elements of the CTBT verification regime; and contributes to the continued ability of U.S. National Technical Means to provide independent Treaty verification.

QUESTION 66

STATUS OF NONPROLIFERATION TREATIES

FISSILE MATERIAL CUT-OFF TREATY

Chairman Pastor and Ranking Member Frelinghuysen. The Administration has stated the Fissile Material Cut-off Treaty (FMCT) is a priority in its nonproliferation agenda. What is the latest status of the negotiations?

Mr. Black. The United States is working with other Conference on Disarmament (CD) Member States to reaffirm the Program of Work agreed to during last year's CD session and move to negotiations as soon as possible during this year.

Chairman Pastor and Ranking Member Frelinghuysen. What contribution is your organization making to this effort?

Mr. Black. NNSA's Office of Nonproliferation and International Security serves as the lead Department of Energy representative in all USG deliberations and international meetings on the FMCT. With support from the National Laboratory complex, we provide technical input to all positions and papers and are working to develop a verification approach that will allow us to support the President's goals of achieving a verifiable FMCT while at the same time protecting vital DOE/NNSA national security equities.

Chairman Pastor and Ranking Member Frelinghuysen. The verification regime in this treaty has implications for the NNSA weapons complex. How are you coordinating with the rest of the NNSA on this issue?

Mr. Black. We are working directly with the Office of Defense Programs, as well as the Naval Nuclear Propulsion Program, to ensure that the vital U.S. national security interests represented by those two organizations will be protected under any FMCT verification regime.

QUESTION 67

STATUS OF NONPROLIFERATION TREATIES

HIGHLY-ENRICHED URANIUM BLEND-DOWN

Chairman Pastor and Ranking Member Frelinghuysen. This successful program is approaching its completion with the down-blending of hundreds of metric tons of Russian weapons-usable Highly-Enriched Uranium. The Russians have not expressed an interest in blending down additional amounts of material. What is the status of the negotiations?

Mr. Black. There are no ongoing negotiations. Public Law 110-329 (aka the Domenici Law) affirms that the United States supports continued down blending of weapons-origin HEU in Russia, and establishes terms and incentives for transparently eliminating an additional 300 MT of Russian HEU after 2013.

Unfortunately, the Russians have previously and consistently stated their unwillingness to consider an extension of the current arrangement beyond 2013. Nevertheless, continued Russian HEU elimination is a nonproliferation priority and we will continue to examine and pursue alternative blending arrangements that may be acceptable to Russia.

QUESTION 68

MEDICAL ISOTOPE MOLYBDENUM-99

REACTOR CONVERSION AND MOLY-99

Chairman Pastor and Ranking Member Frelinghuysen. The primary supplier of the medical isotope Moly-99 is the Canadian Candor reactor. The reactor has had a number of unscheduled shutdowns in recent months that caused critical shortages of Moly-99, which is used to diagnose diseases. An effort is underway to establish a domestic supply as quickly as possible. The request of $119 million for research reactor conversion includes $30 million, $16 million above fiscal year 2010, to accelerate the establishment of a domestic supply of this isotope.

Does the acceleration of this program address the immediate shortage of Moly-99 now faced in the United States?

Mr. Black. No, it does not. Our interest in accelerating domestic commercial projects to produce ^{99}Mo is a nonproliferation issue because we want it done without the use of highly enriched uranium (HEU).

Chairman Pastor and Ranking Member Frelinghuysen. Your budget request notes that the Global Threat Reduction Initiative is working to demonstrate Moly-99 production technologies that do not rely on Highly-enriched Uranium. Is the Department also working to develop

technologies that will fulfill the same medical purposes, but which do not rely on Moly-99? Why not?

Mr. Black. Developing other technologies that do not rely on ^{99}Mo, such as developing alternative imaging modalities to reduce dependence on ^{99}Mo, is not within our mandate. In any event, ^{99}Mo is the most widely used isotope in nuclear medicine, and developing other technologies that may not have the same level of technical maturity, applicability, and transferability as ^{99}Mo would likely not alleviate the shortage in the timeliest manner possible. The demand and distribution infrastructure for ^{99}Mo currently exists in the United States, and resources are focused to accelerate existing commercial projects to produce the isotope in the United States as rapidly as possible, but without the use of HEU.

Chairman Pastor and Ranking Member Frelinghuysen. What is the status of the program to convert the Missouri reactor to Low-enriched uranium?

Mr. Black. The University of Missouri Research Reactor Center (MURR) has completed feasibility studies on the conversion of the MURR from HEU fuel to low enriched uranium (LEU) fuel. These studies concluded that conversion of the MURR to LEU fuel is technically feasible, provided that new LEU-Mo monolithic fuel is qualified, commercially available, and that no significant economic or performance penalties are incurred as a result of the conversion.

Chairman Pastor and Ranking Member Frelinghuysen. What other possibilities are in the works to supply this isotope?

Mr. Black. The Organization of Economic Co-operation and Development's Nuclear Energy Agency hosts a High-Level Group on the Security of Supply of Medical Radioisotopes. This group fosters communication between reactor operators, industry groups, and international governments to encourage the optimization of global ^{99}Mo production in the near-term.

In the long-term, aside from the four technology pathways being accelerated through our efforts, there are other commercial developments to supply ^{99}Mo both within the United States and in other countries (e.g., Australia and Poland).

Chairman Pastor and Ranking Member Frelinghuysen. Which reactors that are part of the reactor conversion program are being considered for Moly-99 production and when will they come online, according to the latest plans?

Mr. Black. On March 25, 2010, GTRI issued a Funding Opportunity Announcement to solicit proposals from commercial entities interested in receiving federal support through a cooperative agreement to develop LEU targets for ^{99}Mo production using a research reactor. These competitive bids for demonstrating ^{99}Mo production using LEU targets will be evaluated by a technical merit review panel. The objective of the cooperative agreement award is to produce 3,000 6-day curies, per week, steady state, of ^{99}Mo without the use of HEU by the end of 2013. All reactor operators who can produce ^{99}Mo using LEU are encouraged to apply to this open solicitation.

QUESTION 69

RADIOLOGICAL SECURITY

RADIOLOGICAL THREAT REDUCTION STRATEGY

Chairman Pastor and Ranking Member Frelinghuysen. Securing radiological sources that could be used in a Radiological Dispersal Device (RDD) continues to be a challenge both in the continental United States and abroad. This mission seems like an open-ended commitment in light of the large number of radioactive sources worldwide. You have an endpoint target of removing 2,200 excess domestic radiological sources per year. Another target is securing 5,000 buildings by 2019. These are output measures to demonstrate progress. It does not describe the end state. What is the outcome the program is aiming to achieve?

Mr. Black. Securing radiological material is challenging because even small amounts could be used in an RDD that could cause severe damage and enormous clean up costs. These small amounts of radiological material can be found in most large hospitals around the world, as it they are used for life saving functions such as sterilizing blood.

Even so, this is not an open-ended commitment because not every radioactive source is the right material or used in large enough quantities to be used in an RDD of national significance. Recently, an NRC-led interagency Task Force conducted a rigorous downselection process which identified a limited number of specific isotopes and their corresponding quantities that represent a national security concern. This effort significantly bounds the radiological problem and in fact makes it very manageable. Given these bounds, we estimate (based on data received from the IAEA, NRC and other country regulators, or site visits) that there are 5,000 buildings around the world that contain these specific materials in quantities sufficient to pose a national security threat. Of course, new sources are manufactured and sold, but old sources are excessed and removed as well. Thus, the 5,000 building metric you've just cited is not expected to change much over time (assuming the data we have received from various sources is accurate). In addition, as non-radioactive alternative technologies are developed and put into use, this number should continue to decline.

As for the domestic recovery of unwanted sources, we recover and provide secure storage or disposition for disused radioactive sources that present national security threats and public health and safety hazards. This activity is pursuant to the *Atomic Energy Act of 1954, as amended (AEA)* and should continue as sources become disused because:

- States have not established commercial disposal options for Class A, B, and C waste as called for in the *Low-Level Radioactive Waste Policy Amendments Act of 1985 (LLRWPAA)*
- The Federal Government has not yet established a Greater than Class C disposal facility as called for by the LLRWPAA

Chairman Pastor and Ranking Member Frelinghuysen. In examining your performance indicators, it is difficult to understand what the large funding increase accomplishes. How does

this large increase only secure an additional 2,786 radiological sources in fiscal year 2011 when the much smaller fiscal year 2010 appropriation secured 3,214 sources?

Mr. Black. The estimated cost per source recovery is increasing because as certified transportation casks and approved disposal pathway options diminish, each source recovery becomes more complex and expensive. We are working to develop new certified shipping containers and find disposition pathways for the highest priority source recoveries. In addition, we are trying to keep costs down by conducting regional source roundups and by identifying source owners who are able to bear the costs of shipping sources themselves, or at least contributing to offset some of the cost.

QUESTION 70

RADIOLOGICAL SECURITY

INTERNATIONAL RADIOLOGICAL THREAT REDUCTION

Chairman Pastor and Ranking Member Frelinghuysen. There is a 540% increase in international radiological threat reduction from $8 million in fiscal year 2010 to $45 million in the fiscal year 2011 request. What explains this dramatic increase?

Mr. Black. The increase reflects the significant acceleration needed to recover 90 Russian radioisotopic thermoelectric generators (RTGs) in FY2011. Each RTG contains more than 50,000 curies of Strontium-90 and could be used in a very large dirty bomb.

Chairman Pastor and Ranking Member Frelinghuysen. What are the criteria for determining what radioactive sources overseas should be addressed by the GTRI program?

Mr. Black. GTRI has developed a detailed Protection and Sustainability Criteria Document (February 2010) that is used to prioritize all program efforts. This document contains an entire section dedicated to work scope prioritization and is applicable to international source protection efforts. The prioritization process involves three steps. Step 1 is to determine the material attractiveness level. This is based on types and quantities of materials listed in the NRC-led interagency Task Force report on radioactive materials of concern. The second step is to determine other prioritization factors including existing site security conditions, the general threat level in that country, and the proximity of the materials to U.S. strategic targets. These factors are then combined in Step 3 which helps us define the priority level for each building.

Chairman Pastor and Ranking Member Frelinghuysen. The out-year funding estimates include dramatic increases for this activity. What explains this?

Mr. Black. The outyear funding estimates bear a logical and consistent relationship to the increased scope of work and acceleration I described for FY11. Ultimately, we are planning to recover the remaining 205 Russian RTGs. This work is scalable and the program can accomplish more, sooner with additional funding. We are requesting annual increases in order to

accelerate the pace of security enhancements, as well as provide for the sustainability of all completed security enhancements.

QUESTION 71

OTHER ISSUES

HIGHLY ENRICHED URANIUM DOWNBLEND

Chairman Pastor and Ranking Member Frelinghuysen. The budget request notes that U.S. Highly-Enriched Uranium is being downblended through four current initiatives, and additional efforts are being planned. What are those additional efforts?

Mr. Black. The large standing inventories of surplus HEU that characterized the HEU disposition program at its inception over a decade ago have been largely eliminated by past and current disposition projects. Approximately 63 percent of the 209 metric tons of surplus HEU suitable for down-blending and commercial use has either been down-blended or shipped to down-blending facilities, and over 80 percent of this amount is covered by existing contracts.

Approximately 20 percent of the HEU declared surplus has not yet been allocated to any contracts or agreements for its disposition. It will not begin to become available for disposition until after 2012, and then only at a very low rate, according to current schedules for weapon dismantlements, Naval Reactors material rejects, and weapons pit disassembly. NNSA is actively assessing options to efficiently contract for, process and dispose of the remaining inventories, taking into account the expected lower future disposition rates.

QUESTION 72

OTHER ISSUES

TRACKING NONPROLIFERATION NETWORKS

Chairman Pastor and Ranking Member Frelinghuysen. The request for Nonproliferation and International Security notes that NNSA has developed a capability to develop actionable intelligence related to nonproliferation networks.

What is this capability? Why is the Department developing intelligence? My impression is that NNSA was more accomplished at analyzing intelligence, not generating it.

Mr. Black. NNSA's Nonproliferation and International Security (NIS) program does not develop intelligence but, as noted in the NIS request, extracts actionable information dealing with proliferation networks, technology transfers and involvement of entities and persons of interest in proliferation and terrorism, and provides critical technical support, real-time "reach-back" capabilities, and policy guidance to USG interdiction groups and activities. The actionable information -- key factors, critical nodes, vital materials, and program nexus -- aids U.S. government agencies to formulate responses and strategies to counter

proliferation networks, technology transfers and involvement of entities and persons of interest.

QUESTION 73

OTHER ISSUES

GLOBAL PARTNERSHIP

Chairman Pastor and Ranking Member Frelinghuysen. Your budget request notes that the U.S. has pledged to commit $10 billion over 10 years to the Global Partnership Against the Spread of Weapons and Materials of Mass Destructions, formed in 2002. According to the information you have provided, the United States has committed $3.8 billion from fiscal year 2002 through fiscal year 2009. Less than $1.5 billion is in your projected budgets from fiscal year 2010 through fiscal year 2015. That would total roughly $5.3 billion over 15 years....not exactly what we have pledged to commit.

What is the reason for this discrepancy? Is the program not worth significant support?

Mr. Black. Through FY 2009, the United States committed more than $8.4 billion to the G8 Global Partnership (GP) and expended just short of $7.8 billion. The GP has had considerable success in numerous areas (detailed below) that contribute to U.S. nonproliferation and counter-terrorism objectives, enjoys considerable support from our allies, and is worthy of continued support from the United States. In the U.S. national statement at the April, 2010 Nuclear Security Summit, President Obama stated that the United States is prepared to support another ten year extension of the program and that the Global Partnership should take on an expanded, global role. For its part through FY 2009, NNSA has expended approximately $3.8 billion, or nearly half of the total U.S. contribution to date.

Chairman Pastor and Ranking Member Frelinghuysen. What have other countries committed?

Mr. Black. Through 2009, the 23 members of the Global Partnership have collectively contributed more than $18 billion to meet the GP objectives. The attached Annex to the Global Partnership Working Group Report to Leaders for 2009 details the most up-to-date numbers available on Partner contributions.

Chairman Pastor and Ranking Member Frelinghuysen. What specifically is this funding used for?

Mr. Black. To date, funding has largely focused on the dismantlement of decommissioned Russian nuclear submarines and chemical demilitarization in Russia, as well as the disposition of fissile materials, and the redirection of former WMD scientists in the FSU. NNSA funds have contributed in numerous ways, including the physical protection of nuclear material in Russia

and Ukraine, the shutdown of plutonium production reactors in Russia, plutonium disposition, engagement, the blenddown of HEU from Russia's weapons program to meet electricity needs in the United States, engagement of former WMD scientists in Russia and throughout the FSU, and other efforts. G8 Leaders have identified four potential areas for future emphasis, if the GP is extended beyond its current mandate: nuclear and radiological security, biological security, WMD scientist engagement, and facilitation of the implementation of UNSCR 1540.

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