

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS FOR 2016

HEARINGS BEFORE A SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES ONE HUNDRED FOURTEENTH CONGRESS FIRST SESSION

SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT

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PART 8

NATIONAL NUCLEAR SECURITY ADMINISTRATION

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ENERGY AND WATER DEVELOPMENT, AND RELATED AGENCIES APPROPRIATIONS FOR 2016

WEDNESDAY, MARCH 4, 2015.

DEPARTMENT OF ENERGY, NATIONAL NUCLEAR SECURITY ADMINISTRATION, WEAPONS ACTIVITIES

WITNESSES

**LIEUTENANT GENERAL FRANK G. KLOTZ, USAF (RETIRED) ADMINIS-
TRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION
DON COOK, DEPUTY ADMINISTRATOR FOR DEFENSE PROGRAMS, NA-
TIONAL NUCLEAR SECURITY ADMINISTRATION
BRIGADIER GENERAL STEPHEN "S.L." DAVIS, PRINCIPAL ASSISTANT
DEPUTY ADMINISTRATOR FOR MILITARY APPLICATION, NATIONAL
NUCLEAR SECURITY ADMINISTRATION**

Mr. SIMPSON. I would like to call the hearing to order. I apologize for being a few minutes late. Good afternoon, everyone.

Administrator Klotz, I would like to welcome you for your first appearance before this subcommittee and also thank you for your service to this country. I understand that you are retired a Lieutenant General in the United States Air Force with over 38 years of service and some impressive accomplishments. We look forward to hearing from you today on your vision of the NNSA and your priorities for the fiscal year 2016 budget request.

General Davis, I also would like to welcome you and your service to this country and for your appearance before this subcommittee. We appreciate your attendance today.

Dr. Cook, this is your fifth time before this subcommittee, and it is a pleasure to have you back.

The President's budget request for weapons activities is \$8.8 billion, an increase of \$615 million, 7.5 percent, over the fiscal year 2015 enacted level. That figure does not include the \$234 million in nuclear emergency response activities that were funded in this account in fiscal year 2015 but that are now proposed to be shifted to defense nuclear nonproliferation in this budget request.

After accounting for this shift, the request for direct support for weapons programs is \$839 million, or 10.5 percent, above fiscal year 2015. The President's budget request for 050 defense activities is \$38 billion over the budget caps in the Budget Control Act. Those caps are essentially flat for fiscal year 2016, which means that every increase over last year's amount will have to be offset by some other activity. With the magnitude of the defense needs we are facing, tough decisions must be made. You will have to ensure that we understand the importance of every dollar you request

and that we have full confidence in your ability to execute those dollars. We must also have confidence in the NNSA's program to implement management improvements to ensure construction projects and acquisition programs are on time and within budget.

Though there have been some modest gains, serious challenges remain. The continued reliability of our Nation's nuclear weapons stockpile, associated with infrastructure, is my highest defense priority, and it is our responsibility to ensure that no more time or money is wasted on failed and unaffordable strategies. The needs of the nuclear security enterprise are too great and the mission is too important to fail. So today, we hope to get a better understanding of your strategy to accomplish this mission and transform the NNSA into an agency that delivers on its promises. Please ensure for the hearing record that responses to the questions for the record and any supporting information requested by the subcommittee are delivered in final form to us no later than 4 weeks from the time you receive them. I also ask that if members have any additional questions that they would like to submit to the subcommittee for the record that they please do so by close of business tomorrow. This means you might have to bring by carrier pigeon if the snow comes.

With those opening comments, I would like to yield to Mr. Visclosky, acting as ranking member today.

Mr. VISCLOSKY. Thank you, Mr. Chairman.

Ms. Kaptur is on the House floor and will be delayed. On her behalf, I would ask that her opening statement be entered into the record, if I could.

[The information follows:]

OPENING STATEMENT

The Honorable Marcy Kaptur
Ranking Member, Energy and Water Development Subcommittee
House Committee on Appropriations

Hearing on the NNSA Weapons Program
March 4, 2015

Welcome, General Klotz, Dr. Cook, and General Davis. We appreciate you appearing before the Subcommittee this afternoon.

Since this Subcommittee last met to review the National Nuclear Security Administration budget, much has transpired. Russia's brazen intervention in Ukraine has caused great concern in this country and around the world. Just this week, the assassination of opposition leader Boris Nemtsov provided a deadly reminder of Russian President Putin's capability.

It is through that lens that we must assess our strategic future, including nuclear security.

There is nothing I take more seriously in my role as a Member of Congress than decisions of war and peace in general, and nuclear weapons in particular.

Still, nuclear weapons serve as only one component of our national nuclear strategy. The NNSA nonproliferation program also plays a central role in securing nuclear material globally and provides a rare look into the Russian nuclear program.

Congress, and this Subcommittee in particular, must balance the need to maintain our nuclear weapons stockpile with the importance of reducing global vulnerabilities through nonproliferation efforts.

Additionally, the tremendous amount of money spent on our nuclear capabilities compels a sharp attention to ensuring financial responsibility.

The NNSA makes up a sizeable portion of this Subcommittee's bill, with nuclear weapons representing seventy percent of NNSA's total budget.

This proposal further increases funding significantly for nuclear weapons—\$667 million over last year—even in defiance of sequestration's harsh realities.

Mindful of the many needs of our nation, this Subcommittee must ensure precious resources are provided as part of a coherent strategy.

Further, the NNSA must demonstrate a continued ability to better manage projects, particularly in the weapons account. I remain concerned about repeated and astonishing cost increases and schedule delays that plague the NNSA. The nuclear deterrent is too important and resources too precious to waste funds pursuing unnecessary or unrealistic proposals.

I look forward to hearing your testimony and discussing your budget proposal and plans for the coming year.

Mr. Chairman, I thank you for the time.

Mr. VISCLOSKY. And simply, Mr. Chairman, thank you for holding the hearing, and gentlemen, for your service to our country and for being here today to present your budget request. I appreciate it very much.

Thank you, Mr. Chairman.

Mr. SIMPSON. Thank you. I guess I could turn on the mic now. Administrator Klotz, the floor is yours. Your full statement will be included in the record.

General KLOTZ. Thank you. And I assume the microphone is on. Not seeing a light.

Chairman Simpson, Representative Visclosky, and members of the Subcommittee, thank you for the opportunity to present the President's Fiscal Year 2016 Budget Request from the Department of Energy's National Nuclear Security Administration (NNSA). And I am very pleased to be joined today by Dr. Don Cook and Brigadier General S.L. Davis. We value this Committee's leadership in national security as well as its robust and abiding support for the mission and the people of NNSA. Our budget request, which comprises more than 40 percent of DOE's overall budget, is \$12.6 billion. This is an increase of \$1.2 billion, or 10.2 percent over the fiscal year 2015 enacted levels.

This funding is extraordinarily important to NNSA's missions to maintain a safe, secure, and effective nuclear weapons stockpile, to prevent, counter, and respond to the threat of nuclear proliferation and nuclear terrorism, and to support the capability of our nuclear-powered Navy to project power and protect American and allied interests around the world. By supporting growth in each of our four appropriations accounts, this budget represents the commitment by the Administration to NNSA's vital and enduring missions and NNSA's role in ensuring a strong national defense. And this mission is accomplished through the hard work and innovative spirit of a highly-talented workforce committed to public service.

To provide them the tools they need to carry out their complex and challenging tasks both now and in the future, we must continue to modernize our scientific, technical, and engineering capabilities and infrastructure. In doing so, we are mindful of our obligation to continually improve, as you suggested, our business practices, and to be responsible stewards of the resources that the Congress and the American people have entrusted to us.

To this end, NNSA continues to make progress on key surveillance and life extension programs, which directly support the President's direction to maintain a safe, secure, and effective nuclear arsenal. Funding at the fiscal year 2016 budget request level will ensure these key life extension programs stay on track. The budget request also funds a new disciplined approach to achieving key capabilities and key deliverables for our uranium and for our plutonium capabilities. NNSA will continue driving improvements in acquisition and project and program management practices and policies and Federal oversight across the enterprise.

Although no less important, I will hold off discussions in my opening remarks on NNSA's defense nuclear nonproliferation and naval reactors programs until your second hearing with this Subcommittee on March 25. These highlights are just a few of the critical national security responsibilities that this budget funds. How-

ever, let me be frank and point out that the looming possibility of sequestration is a major threat to NNSA's missions. In developing the budget, NNSA was directed to request the funds that we need to accomplish the missions that we have been tasked to do. The fiscal year 2016 budget request reflects this direction. Another round of cuts would have devastating impacts on our weapons program, to include the possibility of pushing key programs further out into the future and driving up their cost. It would also have grave impacts on the science, technology, and engineering work taking place at our laboratories and at our production plants, work that underpins our nuclear security and our broader national security.

While we have made some tough resource decisions across the NNSA, the Secretary of Energy and I believe that our enduring missions are too vital to the Nation's security to be further constrained by spending caps, a position which we urge the Subcommittee to support.

Again, sir, thank you for the opportunity to appear before you today.

Mr. SIMPSON. Thank you. And, again, thank you for your service to the country and for what you are doing now. It is much appreciated.

[The information follows:]

**Statement of Lt. Gen. Frank G. Klotz, USAF (Ret)
Administrator
National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2016 President's Budget Request
Before the
Subcommittee on Energy & Water Development
House Committee on Appropriations**

March 4, 2015

Chairman Simpson, Ranking Member Kaptur, and Members of the Subcommittee, thank you for the opportunity to present the President's Fiscal Year (FY) 2016 Budget Request for the Department of Energy's (DOE) National Nuclear Security Administration (NNSA). We value this Committee's leadership in national security, as well as its strong and abiding support for the mission and people of the NNSA.

The President's FY 2016 Budget Request for NNSA, which comprises more than 40% of the DOE's budget, is \$12.6 billion, up \$1.2 billion or 10.2% over the FY 2015 enacted level. The NNSA has a unique and special responsibility for maintaining a safe, secure, and effective nuclear weapons stockpile for as long as nuclear weapons exist; preventing, countering and responding to evolving and emerging threats of nuclear proliferation and terrorism; and, supporting the capability of our nuclear-powered Navy to project power and protect American and Allied interests around the world. By supporting growth in each of our four appropriations accounts, this budget request represents a strong endorsement of NNSA's vital and enduring mission, and is indicative of the Administration's unwavering commitment to a strong national defense.

The NNSA's mission is accomplished through the hard work and innovative spirit of a highly talented workforce committed to public service. To provide them the tools they need to carry out their complex and challenging task, both now and in the future, we must continue to modernize our scientific, technical and engineering capabilities and infrastructure. In doing so, we are mindful of our obligation to continually improve our business practices and to be responsible stewards of the resources that Congress and the American people have entrusted to us. The NNSA took several significant steps toward this objective during the past year.

NNSA's FY 2016 Budget Request reflects the close working partnership between NNSA and the Department of Defense (DoD) in providing for our Nation's nuclear deterrence capabilities and modernizing the nuclear security enterprise. As in last year's Budget, DoD is carrying a separate account in its FY 2016 Budget Request for the out years, FY 2017 and beyond, which identifies funds for NNSA's Weapons Activities and Naval Reactors. We urge this Subcommittee's support for alignment of its appropriations process and national defense or "050" allocations, including

the subcommittee 302(b) allocations, with the President's Budget. The requested allocation supports NNSA and DoD priorities.

Tough decisions and trades in FY 2016 have been made to meet military commitments and nuclear security priorities. If the request is not fully supported, modernization of our nuclear enterprise and implementation of our long-term stockpile sustainment strategy could be put at risk. The program we have proposed is highly integrated and interdependent across the stockpile management, science and infrastructure accounts.

Apart from the need for national defense allocation alignment, the looming possibility of sequestration is a major threat to all NNSA missions. The NNSA FY 2016 Budget Request exceeds the caps set on national security spending in the Budget Control Act (BCA); but is necessary to meet our national security commitments. Reduced funding levels will place these commitments at risk. We have made some tough resource decisions across the NNSA, but the Secretary of Energy and I believe that our enduring missions are too vital to the Nation's security to be further constrained by the current BCA spending caps.

Details of the FY 2016 President's Budget Request for the NNSA follow:

Weapons Activities Appropriation

The FY 2016 Budget Request for the Weapons Activities account is \$8.8 billion, an increase of \$666.6 million or 8.1% over FY 2015 enacted levels. It is comprised not only of the Defense Programs portfolio, which is responsible for all aspects of stockpile stewardship and management; but also the enterprise-wide infrastructure sustainment activities managed by our Office of Safety, Infrastructure and Operations, as well as our physical and cybersecurity activities. It should be noted that in this budget request we have moved NNSA's on-going emergency response and counterterrorism and counterproliferation capabilities out of the Weapons Activities account and into the Defense Nuclear Nonproliferation account. This action aligns activities for preventing, countering and responding to global nuclear threats into a single account.

Maintaining the Stockpile

Last year, we again successfully used science-based stockpile stewardship to certify to the President that the American nuclear weapons stockpile remains safe, secure, and effective--without the need for underground nuclear testing. It is important to periodically remind ourselves that we have been able to do this every year largely due to the investments we have made and continue to make in state-of-the-art diagnostic tools, high performance computing platforms, and modern facilities staffed by extraordinarily talented scientists, engineers and technicians.

For Directed Stockpile Work (DSW), the FY 2016 request is \$3.2 billion, a \$494.7 million increase over FY 2015 enacted levels, or about 18.4%. Approximately \$133 million of this increase

reflects a restructuring of the accounts when compared to the FY 2015 budget request. These changes are discussed below.

With respect to the major life extension programs (LEP), we have now passed the halfway mark in the production phase of the W76-1 LEP. This LEP, which directly supports the Navy, is now on track and on budget. Our FY 2016 Request of \$244.0 million will keep us on track to complete production in FY 2019.

We are also making significant progress in the engineering development phase of the B61-12 LEP. The B61 is a gravity bomb associated with Air Force long-range nuclear-capable bombers, as well as dual-capable fighter aircraft. Working with the Air Force, we successfully completed environmental flight tests on the F-15, F-16, and B-2 aircraft on or ahead of schedule. The B61-12 LEP will enter Phase 6.4 Production Engineering in 2016; and, with the \$643.3 million requested, we will remain on track to deliver the First Production Unit (FPU) in FY 2020.

Based on results from the ongoing surveillance of the nuclear weapons stockpile performed by NNSA's laboratories and plants, the Nuclear Weapons Council decided that it was prudent to expand the planned W88 Alteration (ALT) 370 to now include replacement of the conventional high explosive in the warhead. The budget request reflects this decision and includes \$220.2 million to support the FPU in FY 2020.

The budget request also includes \$195.0 million to support the Nuclear Weapons Council decision to accelerate by two years an LEP of the W80 to serve as the warhead for the Air Force's Long Range Stand-Off system (LRSO). FPU is now slated for 2025.

This budget request also supports our goal of dismantling all weapons retired prior to FY 2009 by FY 2022. In fact, we have already dismantled more than 42% of these weapons in 38% of the time allotted. This funding will ensure that we stay on track to meet our dismantlement commitment.

Within DSW, the budget request also includes \$415.0 million for a new "Nuclear Materials Commodities" subprogram to support the investment needed in nuclear materials to maintain the viability of the enduring stockpile. Included in this subprogram are Uranium Sustainment, Plutonium Sustainment, and Tritium Sustainment which are all crucial to sustain our stockpile, even as we move to lower levels in our nuclear stockpile. Since last year, we have created and empowered new program manager positions to oversee each of these nuclear materials programs. Also included within DSW, is a subprogram for Domestic Uranium Enrichment. Ensuring we have a domestic uranium enrichment capability for national security needs is particularly important in maintaining a domestic source of LEU to produce tritium and for research reactor conversion program and eventually to produce HEU for Naval Reactors fuel.

Consistent with the Consolidated and Further Continuing Appropriations Act for Fiscal Year 2015, activities formerly carried out under Campaigns are now included under Research, Development, Test, and Evaluation (RDT&E). The funding request for RDT&E is about

\$1.8 billion, essentially the same as the FY 2015 enacted level. This includes \$623.0 million for the Advanced Simulation and Computing (ASC) Program, an increase of \$25.0 million for the Advanced Technology Development and Mitigation (ATDM) subprogram that supports high performance computing; \$130.1 million for Advanced Manufacturing Development, an increase of \$22.9 million. This funding will support work related to electronics-based arming, fusing, and firing, as well as other technologies that require significant technical effort to ensure production readiness for manufacturing technologies needed to replace sunset technologies. We continue to develop and mature additive manufacturing technologies that can provide significant cost avoidance by reducing costs to prototype and manufacture tooling and certain weapons components. These increases are largely offset by relatively small decreases in the Science (-\$22.5 million for a total request of \$389.6 million), Inertial Confinement Fusion Ignition and High Yield Program (-\$10.4 million for a total request of \$502.5 million), and Engineering (-\$4.6 million for a total request of \$131.4 million) Programs.

The Inertial Confinement Fusion Ignition and High Yield program has spearheaded ongoing improvements in both management and operational efficiencies at NNSA's major high energy density (HED) facilities, including the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory (LLNL). As a result of these improvements, LLNL has been able to increase the shot rate at NIF. NNSA recently completed a 10-year HED Science Strategic Plan to guide work in this important field.

Partnering with the DOE Office of Science, NNSA continues to make much needed investments in exascale computing. NNSA's ASC Program provides leading edge, high-end modeling and simulation capabilities to sustain and modernize the stockpile today and into the future. The FY 2016 Request includes \$64 million for the ASC's Advanced Technology Development and Mitigation subprogram to pursue long-term simulation and computing goals relevant to the exascale computing needed to support the broad national security missions of the NNSA. Both the NNSA and DOE's Office of Science continue to collaborate with the Office of Science providing \$209 million towards the development of capable exascale systems.

Defense Programs also supports the vitality of the broader National Security Enterprise. An important aspect of this is investing in Laboratory-, Site- and Plant-Directed Research and Development (LDRD). Independent reviews have consistently affirmed the importance of the program to the long-term vitality of the labs. LDRD provides basic research funding to foster innovation and to attract and retain young scientific and technical talent. Congressional support is essential to sustaining this essential national capability.

Finally, another important accomplishment within Weapons Activities in 2014 was the renewal of the Mutual Defense Agreement with the United Kingdom. Since 1958, this enduring agreement has enabled mutually beneficial exchange of nuclear expertise between the United States and UK, contributing to a long and proud history of defense cooperation between our two nations. In this case, the Administration and the Congress worked closely together to achieve a shared goal. We are truly grateful for your support.

Improving Safety, Operations and Infrastructure

In order to support all of these critical programmatic activities, we are making important strides in recapitalizing our aging infrastructure throughout the enterprise. In August 2014, DOE and NNSA formally dedicated the new National Security Campus (NSC) in Kansas City, Missouri. The former Kansas City Plant was relocated from the Bannister Federal Complex, a 70-year-old facility, to the NSC with half the footprint and a modern operating environment. The move was safely and securely completed one month ahead of schedule and \$10 million under budget. The NSC manufactures or purchases 85% of the non-nuclear components that make up our nuclear weapons, and thus plays a major role in keeping the Nation's nuclear stockpile safe, secure and effective.

The FY 2016 request restructures many of the activities formerly conducted under the Readiness in Technical Base and Facilities (RTBF) into the Infrastructure and Safety program. This new program will maintain, operate and modernize the NNSA general purpose infrastructure in a safe, secure, and cost-effective manner. Infrastructure and Safety efforts are organized around five elements – Operations of Facilities; Safety Operations; Maintenance; Recapitalization; and, Line Item Construction. Together, these elements provide a comprehensive approach to arresting the declining state of NNSA infrastructure. The FY 2016 request for Infrastructure and Safety is \$1.5 billion and reflects an increase of \$79.4 million for comparable activities from the FY 2015 enacted level. This funding will allow NNSA to modernize and upgrade aging infrastructure and address safety and programmatic risks.

We are developing a 10-year strategic plan that identifies the activities NNSA is undertaking to arrest the declining state of NNSA infrastructure, reduce Deferred Maintenance (DM), and dispose of excess facilities. The major elements of the plan include improving infrastructure decision-making with implementation of new, risk-informed analytical methods to better evaluate the ability of an asset to support program core capabilities; improving program management tools through implementation of standardized and automated processes and systems for scope, cost, and schedule management; accelerating recapitalization and construction efforts to revitalize infrastructure and make better use of the resources by strategically procuring common systems and components used across the enterprise; and shrinking the NNSA footprint by deactivating and disposing of excess facilities, with increased focus on timely deactivation and on repurposing and reuse as a strategy to avoid new construction. Within this 10-year plan, the transferring of the old Kansas City Bannister Road facility to a private developer to repurpose the site for local community use will eliminate \$250 million in DM. We recognize that these goals will not be met quickly, and that arresting the declining state of NNSA infrastructure will require steady commitment at all levels of the organization over many years. We believe that the tools and processes we are developing and implementing, along with sustained investment in our infrastructure, will set NNSA on the right path to ensuring a viable, safe, and effective nuclear security enterprise well into the future.

The Infrastructure and Safety program addresses the needs of program specific infrastructure, primarily the Uranium Processing Facility (UPF) and the Chemistry and Metallurgy Research

Replacement (CMRR) project. RTBF provides a defined level of readiness and capability through infrastructure investments and strategy development that are dedicated to special nuclear material processing and inventory management. The RTBF program accomplishes this mission by modernizing stockpile stewardship and management infrastructure through capability investments, strategic development, and line-item construction projects for the sustainment or enhancement of capabilities. The FY 2016 request is \$1.1 billion, with a reduction of \$1.4 billion, due to the transfer of select activities to Infrastructure and Safety. For comparability purposes, the FY 2016 request for RTBF is increased more than 50% to support a new source of high-purity depleted uranium, to realign recapitalization of Defense Programs capabilities through the Capabilities Based Investments (CBI), and to increase funding for the UPF at Y-12 to \$430.0 million and the CMRR Project at the Los Alamos National Laboratory (LANL) to \$156.0 million.

Last year, NNSA successfully executed one of the largest and most complex contract transitions in the history of the Department with the award of a contract to Consolidated Nuclear Security to operate and manage both the Pantex Plant and the Y-12 National Security Complex. The consolidated contract was written to require efficiencies and improved operations as a requirement for continued performance beyond the initial five-year base period. This is a departure from other management and operating contracts where efficiencies and effectiveness are considered but are not mandatory.

Our Office of Secure Transportation (OST) provides safe, secure movement of nuclear weapons, special nuclear material, and weapon components to meet projected DOE, DoD, and other customer requirements. It continues to modernize assets by extending the life of the Safeguards Transporter and is currently looking at options for the next generation transporter, the Mobile Guardian Transporter. To meet an increasing workload, OST is planning a small increase in the number of federal agents.

The primary mission of NNSA's Office of Defense Nuclear Security (DNS) and the Chief Security Officer is to develop and implement sound security programs to protect Special Nuclear Material (SNM), people, information, and facilities throughout the nuclear security enterprise. The NNSA's Defense Nuclear Security FY 2016 request is \$632.9 million. The request manages risk among important competing needs even as NNSA continues to face the challenges associated with an aging physical security infrastructure that must be effectively addressed in the coming years. The request includes \$13 million to initiate installation of Argus at the Device Assembly Facility at the Nevada National Security Site. Argus is the enterprise security system for Category 1 SNM facilities that integrates access control, intrusion detection, and video assessment of alarms to protect and control high-consequence assets. DNS also has a prioritized list of smaller infrastructure upgrade projects it will execute as General Plant Projects within available O&M funding, for example, lighting systems supporting perimeter camera assessment, replacement and upgrades to Argus Field Processors, replacement of ported coax cables and buried cable electronics that will extend lifecycles and delay total system replacements. DNS initiated an Enterprise Vulnerability Assessment process across the

enterprise with a focus on standardizing how vulnerability assessments are conducted and site protection strategies are formulated.

The Information Technology and Cybersecurity FY2016 request is \$157.6 million, a decrease of \$22.1 million or about 12.3% from FY 2015 enacted levels. The difference is attributed to a one-time investment in FY 2015 in the Infrastructure Program to implement a more secure classified computing environment. All activities related to the one-time increase were completed. Information Technology and Cybersecurity supports the nuclear security enterprise. This work includes continuous monitoring and enterprise wireless and security technologies (i.e., identity, credential, and access management) to help meet security challenges. In FY 2016, NNSA plans to complete the recapitalization of the Enterprise Secure Network, modernize the Cybersecurity infrastructure, implement the Identity Control and Access Management project at NNSA Headquarters and site elements, and implement and coordinate all Committee on National Security Systems and Public Key Infrastructure capabilities. In addition, we will leverage the NNSA Network Vision framework to increase the efficiency and cost-effectiveness of NNSA Information Technology (IT) services.

Defense Nuclear Nonproliferation Appropriation

In FY 2016, we have realigned the NNSA programs that continue to support the President's Prague Agenda to address the threat of nuclear proliferation and terrorism into the Defense Nuclear Nonproliferation (DNN) appropriation. NNSA's activities work across the spectrum to prevent, counter and respond to the threat of nuclear and radiological proliferation and terrorism. We work to prevent the acquisition of nuclear or radiological materials, technology, and expertise; we actively counter efforts to develop the materials and scientific knowledge needed to construct a nuclear threat device; and we are poised to respond to terrorist acts by searching for and rendering safe any such devices.

The Defense Nuclear Nonproliferation (DNN) account request is \$1.9 billion, an increase of \$325 million or about 20.1% from FY 2015 enacted levels. At first glance, this figure looks like a very big increase but the number actually reflects a reorganization of our budget to include the Nuclear Counterterrorism Incident Response (NCTIR) and the Counterterrorism and Counterproliferation (CTCP) Programs from the Weapons Activities account. For comparability purposes, the DNN account increase is \$101.0 million or over 5% above FY 2015 enacted levels. Additionally, we have combined the NCTIR and CTCP programs into a single budget program line to eliminate confusion about NNSA nuclear counterterrorism programs and activities. We also changed the NCTIR name to Nuclear Counterterrorism *and* Incident Response Program, reflecting this realignment. The DNN Appropriation will now support two enduring mission areas: 1) The Defense Nuclear Nonproliferation Program and 2) The Nuclear Counterterrorism and Incident Response Program. The Nuclear Nonproliferation Program is also restructuring to place more emphasis on capabilities as opposed to specific programs. This organizational restructuring is reflected in the DNN budget restructuring.

To achieve all of these mission objectives, NNSA has restructured the budget request under the Defense Nuclear Nonproliferation account as follows:

- Material Management and Minimization
- Global Material Security
- Nonproliferation and Arms Control
- Defense Nuclear Nonproliferation R&D
- Nonproliferation Construction
- Nuclear Counterterrorism *and* Incident Response Program.

Together, this restructuring aligns funding for preventing, countering, and responding to global nuclear dangers in one appropriation.

Nonproliferation Efforts

The FY 2016 request for the DNN Program, excluding NCTIR and Legacy Contractor Pensions, is \$1.6 billion, an increase of \$67.9 million or about 4.4% above FY 2015 enacted levels. This past year was a big year for our nonproliferation efforts. Our Defense Nuclear Nonproliferation organization was responsible for many of the significant deliverables at the third Nuclear Security Summit held in The Hague last spring. Of particular note, Japan announced at the Summit that it would work with us to remove and dispose of all highly-enriched uranium (HEU) and separated plutonium from its Fast Critical Assembly. NNSA is currently working with its counterparts in Japan to resolve technical and logistical issues to complete this effort in a timely manner.

Also during the Summit, the United States joined 22 countries in signing up to a “Gift Basket” to secure all Category 1 radioactive sealed sources by 2016. In the United States, there are approximately 465 buildings with Category 1 devices. Of these, NNSA has completed security enhancements at 300 and is currently involved in a targeted outreach campaign to engage the remaining 165 buildings by the end of spring 2015.

And finally, NNSA partnered with five countries to remove 190 kg of HEU and plutonium from civilian facilities; which brings our cumulative total at the end of FY2014 to an impressive 5,207 kg; this is more than enough material for 200 nuclear weapons. While relations with Russia are severely strained, we anticipate that we will continue to cooperate in efforts to repatriate Russian-origin weapons-usable HEU material to Russia.

The Material Management and Minimization (M³) program presents an integrated approach to addressing the persistent threat posed by nuclear materials through a full cycle of materials management and minimization efforts. Consistent with the priorities articulated in the National Security Strategy of the United States and the Nuclear Posture Review, the primary objective of the program is to achieve permanent threat reduction by minimizing and, when possible, eliminating weapons-usable nuclear material around the world. This program includes elements of the former Global Threat Reduction Initiative (GTRI) and Fissile Materials Disposition Programs. The FY 2016 request for this program is \$311.6 million. For comparability

purposes, the request reflects an increase of \$38.7 million or about a 14.2% increase above the FY 2015 enacted levels. The funding increases are primarily for the removal of HEU from miniature neutron source reactors in Africa as well as preparatory activities for future shipments from Europe and Japan, which will proceed with appropriate cost-sharing.

The Global Material Security (GMS) program supports the President's nuclear and radiological security agenda and the Secretary's goal of enhancing nuclear security through nonproliferation. We work with partner countries to increase the security of vulnerable stockpiles of nuclear weapons, weapons-usable nuclear materials, and radiological materials, and to improve partner countries' abilities to deter, detect, and interdict illicit trafficking. Elements of the former GTRI program, International Material Protection and Cooperation (IMPC) program, and Nonproliferation and International Security (NIS) program are being combined in GMS, in order to better integrate capabilities required to support DNN's enduring mission. The FY 2016 request for this program is \$426.8 million. For comparability purposes the request reflects a slight increase of \$2.5 million above the FY 2015 enacted levels. This increase will accelerate the protection of International Atomic Energy Agency Category 1 radiological sources in order to meet the 2014 Nuclear Security Summit commitment to secure these sources by 2016.

The Nonproliferation and Arms Control (NPAC) program supports the President's nonproliferation agenda and NNSA efforts to prevent the proliferation or use of weapons of mass destruction by state and non-state actors. To carry out the goals of this program, we work with the International Atomic Energy Agency (IAEA) and foreign partners to build global capacity to safeguard nuclear materials and prevent illicit transfers of dual-use materials, equipment, technology and expertise. We also work with our partners and the IAEA to develop technologies and approaches to verify and monitor current and future arms control treaties and agreements. This funding also supports statutorily mandated activities such as technical reviews of export licenses and interdiction cases, and technical support for the negotiation and implementation of civil nuclear cooperation agreements (123 Agreements), as well as international export control outreach activities, and activities to support and improve the execution of the NPAC 10 CFR Part 810 application process. The FY 2016 request for this program is \$126.7 million, and reflects a slight increase of \$0.8 million above the FY 2015 enacted level.

The Defense Nuclear Nonproliferation Research and Development (DNN R&D) program supports innovative, unilateral and multi-lateral technical capabilities to detect, identify, and characterize: 1) foreign nuclear weapons programs, 2) illicit diversion of special nuclear materials, and 3) nuclear detonations. To meet national and Departmental nuclear security requirements, DNN R&D leverages the unique facilities and scientific skills of the Department of Energy, academia, and industry to perform research, including counterterrorism-related R&D. DNN R&D conducts technology demonstrations, and develops prototypes for integration into operational systems. The FY 2016 request for this program is \$419.3 million, a \$25.9 million increase or about 6.6% above FY 2015 levels. Increased funding is requested for nuclear and energetic materials characterization experiments and development of advanced diagnostic

equipment capabilities, for long-range nuclear detonation detection, and technical forensics research. This increase over FY 2015 levels is partially offset by a return to baseline funding for the Proliferation Detection subprogram after a one-time Congressional increase in FY 2015 for test bed development and field experiments.

Nonproliferation Construction consolidates construction costs for DNN projects previously contained within each program budget. Currently, the MOX Fuel Fabrication Facility (MFFF) is the only project in this program. The FY 2016 request for MFFF is \$345 million which is the same as the FY 2015 enacted level. The National Defense Authorization Act for Fiscal Year 2015 and the Consolidated and Further Continuing Appropriations Act for Fiscal Year 2015 directed the Department to conduct additional analyses of the MFFF construction project. These analyses will include independent cost and schedule estimates, and examination of alternative approaches for disposition of the 34 metric tons of weapon-grade plutonium and their relationship to the Plutonium Management Disposition Agreement (PMDA). The Department has requested Aerospace Corporation, a federally funded research and development center, to perform these analyses. They will be completed during FY 2015, and will inform a final decision on the path forward. The FY 2016 request emphasizes that while the Department continues to evaluate disposition paths (including the MFFF) to determine the most responsible path forward, any viable alternative will require a significant amount of funds to implement.

Nuclear Counterterrorism and Emergency Response

The FY 2016 Request consolidates counterterrorism and emergency response funding into a single Nuclear Counterterrorism and Incident Response line in the amount of \$234.4 million.

Within NCTIR, the Nuclear Counterterrorism Assessment program represents the primary scientific program to assess the threat of nuclear terrorism and develop technical countermeasures against it. The knowledge generated under this program ensures that NNSA's technical expertise on nuclear threat devices informs DoD and FBI emergency response capabilities. We have taken steps to address funding reductions to the nuclear counterterrorism activities. Over the last two years these activities, formerly known as Counterterrorism and Counterproliferation within the Weapons Activities appropriation, have been funded at a level significantly below the requested amount—70% of the Request in FY 2014 and 60% in FY 2015. The FY 2016 request would dedicate \$57.8M to Nuclear Counterterrorism Assessment in support of improvised nuclear device analysis. Additionally, the request includes funds within Defense Nuclear Nonproliferation R&D for materials characterization experiments and other research, which supports nuclear counterterrorism and incident response missions. Full funding of both lines will make it possible to continue NNSA's vital counterterrorism work at the national laboratories.

NCTIR continues to work domestically and around the world to improve preparedness and emergency response capabilities. Its expert scientific teams and equipment provide a technically trained, rapid response to nuclear or radiological incidents worldwide. NCTIR assesses nuclear or radiological threats and leverages that knowledge to provide contingency planning and training to support national and international counterterrorism and incident

response capabilities. In 2014, NNSA's emergency response teams deployed more than 100 times in support of law enforcement and for major public events, such as the Super Bowl, and conducted five large-scale field exercises with partners from the FBI, DoD, and FEMA. In addition, they deployed over 70 times in support of DHS Domestic Nuclear Detection Office support to state and local first responders. Internationally, NNSA conducted 16 training courses to improve its foreign partners' emergency management capabilities and continued to work bilaterally with Israel, Vietnam, Cambodia, Thailand, Chile, China, Mexico, Argentina, Brazil, Taiwan, Canada, France, Jordan, the Nordic countries, Armenia and Kazakhstan. New programs were also started with Romania, Belarus and the Philippines. These initiatives represent our effort to create a truly global defense against the threat of nuclear terrorism.

NCTIR will also continue the initiative to equip cities with stabilization equipment and training, to ensure a prompt and effective response to nuclear terror threats.

NCTIR also executes the DOE's Emergency Management and Operations Support program that manages the Emergency Operations Centers, Emergency Communications Network, and Continuity Programs for all of DOE, including NNSA.

Naval Reactors Appropriation

Advancing Naval Nuclear Propulsion

During the past year, NNSA helped celebrate the 60th Anniversary of the USS NAUTILUS first getting underway on nuclear propulsion. The Naval Nuclear Propulsion program pioneered advances in nuclear reactor and warship design – such as improving reactor lifetimes, increasing submarine stealth, and reducing propulsion plant crewing. An example is the technology being developed by Naval Reactors that will enable the Ohio-Class Replacement submarine to be designed for a 40-plus year operational life without refueling, resulting in significant savings.

During 2014, Naval Reactors continued its record of operational excellence by providing the technical expertise required to resolve emergent issues in the Nation's nuclear-powered Fleet, enabling the Fleet to steam more 2 million miles. Through the work of its laboratory and highly skilled personnel, Naval Reactors also advanced the Ohio-Class Replacement and the S8G Prototype Refueling projects as well as initiating integrated testing of the lead A1B reactor plant for the next generation FORD-class aircraft carrier.

It is generally not well-known that if anything goes wrong with a reactor on one of the Navy's nuclear carriers or submarines while they are at sea, Naval Reactors' cadre of experts provide around-the-clock technical support, and can often resolve the problem and prevent the ship from having to return to port to be checked out and repaired-- which would be quite costly and disruptive to the Navy's deployment schedules.

The budget request for Naval Reactors is \$1.4 billion, an increase of \$141.6 million, about 11.5% from the FY 2015 enacted level. The request includes the base funding required to safely

maintain, operate and oversee the Navy's 83 nuclear-powered warships, constituting over 45% of the Navy's major combatants. The increase supports three high priority activities: \$186.8 million to continue development of the advanced *Ohio*-Class Replacement reactor; \$133 million to continue preparations for the refueling and overhaul of the Land-Based Prototype reactor plant; and \$86 million to continue the design work of the Spent Fuel Handling Recapitalization Project started in FY 2015. To this end, we would like to thank the Subcommittee's support for appropriating \$70 million for Spent Fuel Handling Recapitalization Project in the FY 2015 enacted budget. These activities are essential to maintaining a credible sea-based strategic deterrent, to maintain the research and training capabilities of the Land-based Prototype, and to maintain the capability to safely inspect, store and package naval spent nuclear fuel.

NNSA Federal Salaries and Expenses Appropriation

NNSA Federal Salaries and Expenses (FSE) Request is \$402.7 million, essentially equal to the rate of operations in FY 2015, but 8.9% above the FY 2015 enacted level. The Request provides funding for 1,690 full-time equivalents (FTEs) and support expenses needed to meet mission requirements. We are actively engaged in hiring to that number in a thoughtful and strategic manner. I would note that the Request represents an increase of only \$1.5 million from the FY 2015 planned execution level of \$401.2 million. This is due to the fact that the FY 2015 enacted level was significantly below the request and we will need to use over \$30 million of planned carryover to sustain the currently projected operations of the NNSA federal workforce. We built up that reserve through prudent planning and execution to enable us to pay for large one-time costs, such as the movement of much of our federal workforce in Albuquerque into newer leased space. The increase includes a 1.3 percent cost of living adjustment and benefits escalation, additional support to stand up the Office of Cost Estimation and Program Evaluation (CEPE) office in accordance with Section 3112 of the FY 2014 National Defense Authorization Act (NDAA), and funding to improve financial systems integration within the nuclear security enterprise in accordance with Section 3128 of the FY 2014 NDAA.

In FY 2016, NNSA will continue its on-going efforts to plan strategically to meet current and future workforce needs by analyzing how evolving missions are affecting job requirements. Reshaping of the workforce over the next several years will be essential, including obtaining both the right staffing size and skill sets. NNSA will also continue to identify efficiencies, particularly in travel and support services, to provide a lean and efficient organization and to support the President's Executive Order "*Promoting Efficient Spending*".

Management & Performance

To enhance our ability to carry out our mission and execute this budget request, we will continue to focus on improving our project management and cost estimating capabilities. In keeping with the Secretary of Energy's increased focus on Management and Performance, the NNSA is committed to manage its operations, contracts and costs in an effective and efficient manner. The NNSA's Office of Acquisition and Project Management (APM) is driving continued improvement in contract and project management practices. APM is leading the NNSA's effort

to deliver results by instituting rigorous analyses of alternatives, providing clear lines of authority and accountability for federal and contractor program and project management, and improving cost and schedule performance. NNSA participates in the Secretary's Project Management Risk Committee as a means to institutionalize and share best practices across the Department.

We have used strategic partnerships with the National Laboratories to rethink some of our most challenging projects. As a result of the Red Team review of the UPF at the Y-12 National Security Complex, led by the director of the Oak Ridge National Laboratory, and a similar approach to the Chemistry and Metallurgy Research Replacement (CMRR) Facility capability at Los Alamos National Laboratory, we are developing a disciplined, modular approach for both sites that will remove risks early in the process, and establish a well-defined cost and schedule, both of which were lacking in earlier efforts. This process will be an important and recurring project management theme at the NNSA and across the Department of Energy.

The CEPE was established in September 2014 pursuant to the FY 2014 National Defense Authorization Act. This legislation recognized the effort to improve cost estimating that the NNSA had already started. The CEPE office is a prime example of actions taken to improve our cost estimation efforts. Forging a strong partnership with the Department of Defense (DoD) Office of Cost Assessment and Program Evaluation (CAPE), including joint training activities with CAPE, we have made good progress in establishing CEPE as an independent office. CEPE will provide independent cost estimating leadership, rigorous program analysis, and prudent fiscal guidance. Getting CEPE fully functional is a high priority for NNSA, and we will closely monitor its progress as it grows into its full potential over the next few years.

Conclusion

The NNSA executes vital missions to ensure nuclear security at home and abroad. We do this by delivering the technology, capabilities and infrastructure essential to a 21st century national security organization. Our workforce continues to rise to the challenge and deliver mission effective and cost efficient nuclear security solutions critical for the NNSA to succeed in today's fiscal climate.

In closing, I would also like to mention that the President's Budget Request is just the first in a series of documents slated for release this spring. The most important of those yet to be released is the NNSA Strategic Plan, last updated in May 2011. The goal of this document is to provide a single integrated guidepost for NNSA's leaders, our partners at the labs and plants, and Congress and our external stakeholders. The new strategic plan will articulate a clear direction and mission to everyone – no matter their rank or position. Also to be released is the Congressionally-mandated Stockpile Stewardship Management Plan (SSMP) which details NNSA's multi-year plan for delivering a safe, secure and effective nuclear stockpile. And for the first time, we plan to release a companion plan to the SSMP, tentatively titled, "Prevent, Counter and Respond" to address our plans for nonproliferation, counterterrorism and emergency response programs. Finally, a report is being prepared for Congress in response to

the Final Report from the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, co-chaired by Norm Augustine and Admiral Rich Mies.

Again, thank you for the opportunity to appear before you today.

Mr. SIMPSON. I will ask a question while the ranking member gets settled. But let me ask first, does any member have other hearings that are going on that they need to be out here of quicker? Okay.

Let me first ask, the long-range standoff missile, there is one new life extension program for the W80-4 warhead as part of the plan to produce a new nuclear ship cruise missile, the long-range standoff missile, or LRSO. Can you tell me why the LRSO program has been moved up 2 years in your stockpile plans, and what will be the total cost of this life extension program? The life span of the current cruise missile is good until at least 2030. What is driving this schedule?

Last year, the budget request deferred this program for 2 years to fit within Budget Control Act caps. Have any of the risks or military requirements changed from last year? And previous life extension programs were only funded around \$40 million to \$50 million per year at this early stage in the acquisition program. This request for the LAD-4 LEP is \$195 million. Why is this effort so much more expensive?

General KLOTZ. Mr. Chairman, if I could, let me start by talking about the overall direction of the program, and then I would ask Dr. Cook to talk about specific programmatic details. The reason why we have put in our budgets request an acceleration of the work that we would do for the warhead, the W80-4 on the Air Force's long-range standoff capability, is the Air Force and the Department of Defense have expressed a need for military requirement to move the date for capability 2 years to the left. And therefore, this whole idea was vetted within the Nuclear Weapons Council.

We took a very close look at it in terms of what it would mean in terms of workload on our laboratories, on our production plants, and on our funding capabilities, and decided, in collaboration with the rest of our Department of Defense colleagues in the Nuclear Weapons Council, that we could support a move of our work, our portion of the work, the warhead portion of the work from 2027 to 2025.

And I will leave it to Dr. Cook to talk about specifics of the program.

Mr. COOK. Sure. I will try to answer briefly. Because the first production unit was moved up 2 years, we needed to take a more aggressive start. What we learned, to answer your question, from the W76-1 and from the B61 Mod 12 was that we had funded the technology maturation efforts too late. GAO also did a review of LEP activities, and the recommendation was we fund upfront the technology maturation activities to reduce the risk and to make the rest of the life extension programs move more slowly. So we have taken that experience, we increased by \$167 million because a 2-year pushup, our request from the fiscal year 2015 inception, and we have the teams now in the third quarter of—I am sorry, in this year third quarter of the 61 phase. We go to 62 in July.

Mr. SIMPSON. What would be the impacts on security, on anything else, if this 2-year move-up of this wasn't funded?

Mr. COOK. Do you want to answer the first part?

General KLOTZ. Yeah, I will start the first part. In terms of the warhead itself, the current warhead on the air launch cruise missile, the W80, the family from which we propose that the warhead for the long-range standoff capability come from, is in reasonably good shape. So the real issue has to do with the missile platform. And that really is an Air Force Pentagon issue, so I would leave it to them to describe what their concerns are. And I suspect they would have to do that in a closed session.

Mr. COOK. On the W80 warhead itself, we made the down selection to the family, but we recognize that the existing warhead is an older warhead, and so there might be some modest risk in having a later date. But the real issue here is that many of the non-nuclear technologies will be drawn from the B61 Mod 12. So if we do the W80 Mod 4 after the 61 is completed, we can most cost effectively use those technologies. It also levelizes the workforce, particularly at Y-12 and at Pantex to do this, and that was one of the key considerations in the Weapon Council decision as well.

Mr. SIMPSON. Thank you.

Ms. Kaptur.

Ms. KAPTUR. Mr. Chairman, first of all, I want to thank you and the other members for their courtesy. I was on the floor testifying, or speaking on the Passenger Rail Act. I wanted to also say that both Mr. Visclosky and Ms. Roybal-Allard, were here before I was, so I am happy to rotate to them first.

Mr. SIMPSON. Go ahead.

Ms. KAPTUR. Are they okay? All right.

Thank you so very much for your testimony today. In view of the time, I will just move into questions and not—we placed, through Mr. Visclosky, our statement in the records, our openings statement in the record.

Dr. Cook, in fiscal year 2015, Congress directed a new program be formed to provide focus and transparency to manufacturing development activities that were in your budget request. In the fiscal year 2016 budget request, you are eliminating dedicated funding for additive manufacturing. How much of the budget request invests in development of additive manufacturing capabilities for stockpile production needs, and how do you expect to develop a domestic supplier base without coordinated strategic management?

Mr. COOK. The short answer is that we are not reducing the amount of money we are deploying in additive manufacturing, but it is a field that is growing so rapidly, that although in fiscal year 2015 we have a separate line for it, in fiscal year 2016, we requested that that not be a separate line. Our estimate is that by the end of 2015, when you count not only the part which was appropriated as the omnibus, but other parts in the core programs, our expenditure on additive manufacturing for weapons will approach \$30 million per annum. So in 2016, based on the rate of the development, we thought it would be best to treat that basically as normal business, because it is growing so rapidly. That allows us to tie it to the LEPs directly as well as to additional research.

Ms. KAPTUR. Thank you for your clarification on that. The NNSA has already been tasked to provide a technology roadmap for developing additive manufacturing. When might we receive the roadmap and what might it say?

Mr. COOK. I believe the roadmap is scheduled to be delivered in April. It is about mid-April. I know this because we had a meeting on this earlier this week, went through the substance of the roadmap. It is looking good. And so short answer is about a month and a few weeks from now.

Ms. KAPTUR. All right.

Mr. Administrator, development of the long-range standoff missile will improve our military's long-range strike capabilities. Will the advancements provide new military capability, and might these have adverse impacts on our strategic stability?

General KLOTZ. Again, I think that is a question which is based upon military requirements. Our role in this process is to develop a safe, secure, and reliable, effective warhead for a particular military requirement. So the need to move from air launched—to have a successor to the current air launch cruise missile has been a military requirement defined by the Air Force through U.S. Strategic Command and up to the Pentagon.

What we were asked to do in this particular case is to consider the various options and alternatives for a warhead that would go on a new platform for a cruise missile-like capability. And that is what we have done by taking the existing warhead that is on the air launch cruise missile. We will do some work to enhance the safety and the security of that particular warhead.

Ms. KAPTUR. Do you think that there might be perceptions by other nuclear states that this would serve to destabilize those relationships?

General KLOTZ. Well, this is a capability that the Air Force—and now I am speaking as a former Air Force officer, although we have an Air Force officer here. Maybe I should defer that to S.L. But this is a capability which the Air Force, quite frankly, has had for some time.

S.L., did you want to—

General DAVIS. No, ma'am, and I would agree. Obviously, the DOD has identified some new threats. They are trying to stay ahead of the defensive efforts that are going on. And that is what is going on here, to maintain the capability, the same capability that we currently have, into the future.

Ms. KAPTUR. Thank you. And my final question, Mr. Administrator, in this round, is your fiscal year 2016 budget request includes \$100 million for operating uranium enrichment centrifuges that were constructed as part of a joint demonstration project with USEC, now known as Centrus. How would you evaluate the progress made by the interagency review to understand the minimum uranium and tritium requirements, and what do you believe to be the best use of taxpayer dollars to meet those requirements?

General KLOTZ. That is an extraordinarily good question, and thank you for asking it. There has been an interagency working group addressing what our tritium requirements are, what our low-enriched uranium requirements are, and what ultimately our highly-enriched uranium requirements for naval reactors might be. This process is still going on. I believe we have some reporting requirements mandated by legislation that will require us to report the results of that particular effort.

In the meantime, what the Department of Energy through the NNSA has done is to keep in a warm standby mode the 120 centrifuges which are now managed by Centrus at the Piketon plant in Ohio, and we have asked the M&O contractor for the Oak Ridge National Laboratory in Tennessee to provide oversight for that.

So this capability, we feel, we ought to be able to maintain until such time as we determine what a reasonable path forward is to meet not only the low-enriched uranium requirements that the Nation has, but also the tritium requirements that the Nation has.

Ms. KAPTUR. Thank you very much, Mr. Chairman, for this round.

Mr. SIMPSON. Thank you. We are fortunate to have on this committee still the former chairman and ranking member of this subcommittee, Mr. Frelinghuysen and Mr. Visclosky, who now probably have the toughest jobs in Congress as chairman of the Defense Committee and ranking member of the Defense Committee, with the potential sequestration and the impact that it would have on those appropriations. But they obviously have very strong interests in this subject.

So Mr. Frelinghuysen.

Mr. FRELINGHUYSEN. He has been trying to move me off the committee, and I am being facetious because I know this is being recorded for posterity. But Chairman Simpson is a great chairman, and has been on this committee as long as I have been. And Mr. Visclosky and I and Congressman Calvert and Ms. Kaptur and I had the Secretary of Defense before us this morning across the hall, and Chairman Martin Dempsey, and not surprisingly, and there was someone else, the Comptroller there too. They affirmed the importance of the nuclear deterrent, and that is something which is so critical.

Without getting into sort of the details about platforms, your role—we are aware of the Department of Defense needs. And you have increases in here, in your budget. How would you manage those reductions? How would you absorb those reductions under the Budget Control Act? You have come in with some increases for, you know, weapons activity, but how would you actually get to the sequester numbers?

General KLOTZ. Because, as you well know, the NNSA budget is part of the larger O50 budget, we essentially draw from the same pot of money that the Department of Defense does for the platforms that are associated with the nuclear deterrent. Therefore, decisions about where we would go within specific life extension programs, but also funding for various capabilities, be it in the science and technology area, be it in surveillance, be it in uranium, plutonium or tritium production, would have to be part of a discussion with the Department of Defense in terms of what they thought the priorities were with respect to military requirements.

So I would expect that would be a dialogue that would take place, again, within the Nuclear Weapons Council in terms of what was most dear to them from an overall national strategy and policy perspective, informed, of course, by NNSA in terms of technical feasibility, costs, managing the workload across our laboratories and our production plants.

Mr. FRELINGHUYSEN. As Mr. Simpson said, and others have said in the public arena, there is a distinct possibility. You know, we have to mark to the law here.

General KLOTZ. Right.

Mr. FRELINGHUYSEN. So we are going to need your cooperation and support to make the right decisions. No matter what our military brass says, and I think most members feel the nuclear deterrent is so critically important, we still have to mark to those budget caps. So more cooperation, not that we have had any resistance, is better than less. And I am confident we will meet our obligations to support the deterrent. But I think it is important for you to give us some assurance that you are going to be working to take a look at those reductions which you can impact just from your perspective.

General KLOTZ. Yes, sir. We will commit to do that and we will also commit to work very closely, collaboratively, openly, transparently with the members of this committee as well as the staff.

Mr. FRELINGHUYSEN. Thank you, Mr. Chairman.

Mr. SIMPSON. Appreciate it.

Mr. Visclosky.

Mr. VISCLOSKY. Thank you very much, Mr. Chairman. Mr. Administrator, I understand you have been in your position for just under a year. And I have had great respect for those who have preceded you in that position. But just before I ask my two questions, I would tell you that I am very disturbed that, as I go through some of the issues and questions that we would like to see covered today, whether it is uranium enrichment under the now so-called Centrus, whether it is laboratory overhead, whether it is laboratory-directed research, whether it is excess facilities, I was, at first, struck that these were simply Xeroxed questions from another decade; and so would urge you to be very deliberate and very demanding of your staff and people at NNSA to fix some of these problems that have been longstanding for well in excess of a decade to a decade and a half. And again, I understand you have been in your position less than a year, but I am appalled that we continue to cover the same ground year in and year out with all the bright, competent people under your direction.

The first of two questions I have is, you are working to finalize a design of the B61-12 and move towards production in that life extension program by 2020. In this year's budget, you are also undertaking major work on both the W88 alteration that will also begin production in 2020, and the life extension program of the W80 that is part of the LRSO program.

I am concerned, both about the workload of taking on so many design projects simultaneously, and the affordability of doing all three weapons programs at the same time, particularly when we may not have the luxury of exceeding the budget caps. If I could have your response, please.

General KLOTZ. Yes, sir, and if I could give a general response and then Don can talk about the specifics of the B61 and the other LEPs.

Those were issues which concerned us as well, as we confronted the requests that were coming out of the Nuclear Weapons Council in terms of the way forward on these LEPs. And we had to look

very, very carefully at workload within our laboratories and within the production plants, particularly at Pantex and at Y-12, to make sure that the timing and the way in which these things unfolded would not create bottlenecks in terms of the workforce and the throughput.

The other issue we had to do was to make sure, as Dr. Cook alluded to earlier, there is overlap in terms of specific types of components and capabilities and developments in each of these LEPs. And we had to make sure that they were timed in such a way that developments in one LEP that had spinoffs in another LEP were phased in such a way that we could proceed with both.

Mr. COOK. Sure. Let me give you quick status of where we are. I will start with the bottom line and then support it a bit. Every single LEP is meeting its scope, cost, and schedule requirements at this point. So some of the details, the 76-1 that we had some start-up issues with several years ago—I recall deeply, you probably do, too—we passed the halfway point last September. We are now in the second half of the build. We will complete that by the end of fiscal—

Mr. VISCLOSKY. Which system is that?

Mr. COOK. W76-1. It is the sea-carried ballistic missile for the Navy.

The 61 Mod 12, the gravity bomb, has met all of its requirements, both for the bomb body and for the Air Force portion of the tail kit this year. That is coming along well. In that program, I required, and the labs and plants have supported it, that we introduce earn value management techniques and the full extent of them in the life extension programs, because these are major acquisitions.

I hold a quarterly review—General Davis can probably comment too—on the Air Force and the Navy personnel and DOD folks who come over to the Forrestal Building to join in the quarterly reviews. Following that, each quarter we issue a selected acquisition report, which your staff have access to and you can track, and it supports where we are in the programs. Most recently, in addition, on the W88 Alt 370, which is the new arming, fuzing, and firing system for, again, the sea-carried weapons system, but now a W88, through a concerted surveillance program, Nuclear Weapons Council decided that we would undertake a refresh of the conventional high explosive based on surveillance results, and because it would be most effective and efficient to do that while we had the weapons at Pantex to do the AF&F anyway.

Lastly, on the W80 Mod 4, we have commented already directly, but I believe that that is going to follow the track of actually good planning, getting the tech maturation funding upfront, and then a fairly smooth execution.

Mr. VISCLOSKY. If I could, Mr. Chairman, just one other question. Dr. Cook, I would congratulate you, because it is my understanding on the B61-12 things are on schedule and on budget. Many of these programs you have encountered significant cost increases and schedule delays in the past. As far as the 88 and the 80, if we look back on the B61-12, are we past those points of where there is still uniqueness and uncertainty, or might we still have concern that we will hit some bumps in the road, if you would?

Mr. COOK. I will answer. Specifically for the 88, we are past that point. The 88 is now in its third year of full-scale engineering, so all the early-phase things are done. It is also following the EVM. We, again, do quarterly reviews and select the acquisition reports. The W80 Mod 4 is not yet at that point, but it will follow the same track. So we have already begun the quarterly reviews. We already bring in the Air Force in the reviews. We are tightly coupled there. And because of the development on the 61 non-nuclear components, we are going to be doing a heavy reuse LEP. That always actually reduces the risk rather than increases it. I might ask if General Davis has any comment to offer with regard to the partnership for the Armed Forces and the DOD on these efforts.

General DAVIS. Well, I would just add that, so as we look to the Nuclear Weapons Council to help us with the requirements, we are lashed up with the DOD throughout the development acquisition program. And, as a matter of fact, my role, being embedded at the NNSA, is to help facilitate that relationship, which I believe is very strong.

Mr. VISCLOSKY. Thank you, Mr. Chairman.

Mr. SIMPSON. Thank you.

Mr. Fleischmann.

Mr. FLEISCHMANN. Yes, sir. Thank you, Mr. Chairman. General Davis, Dr. Cook, General Klotz, it is great to see you all. Thank you so much. General Klotz, I would like to just say, I am looking so forward to being with you next week as we do the ribbon cutting on the roads for the uranium processing facility. I want to thank you personally for all of your hard work on this project, bringing this in under budget, under time. And I appreciate that so much, as well as your willingness to work with us throughout your tenure in this position.

As you know, the uranium processing facility is key to the future of Y-12 and reducing the risk of operating in very seriously-aging facilities. Please discuss, with some specificity for our sub-committee, the highs and lows of the funding profile and the critical need for sequencing the work to lowering funding highs in the outyears.

General KLOTZ. This is specifically for UPF?

Mr. FLEISCHMANN. That is correct.

General KLOTZ. Yes, sir. Well, thank you, Congressman, and I too look forward to coming down to Y-12. As I was explaining earlier, many of these projects have a very long life from start to finish. They are very complex buildings that are doing work that require the utmost in terms of safety and security features. And therefore, as we reach various milestones over a long period of time, it is important to celebrate—to recognize the work of the people who have been doing this, the actual labor at the site. And so I am delighted that you will be coming down and that we will be able to properly recognize the people that are there.

UPF program was one which, quite frankly, was in trouble. And roughly a year or so ago, the NNSA commissioned a Red Team report that was chaired by Dr. Thom Mason at Oak Ridge National Laboratory. And he came up with a series of recommendations of how to get UPF back on track. We are in the process of imple-

menting every one of those recommendations in the so-called Red Team report.

One of my first actions in coming on board 11 months ago was to appoint a uranium program manager, Mr. Tim Driscoll, to give him responsibility over the entire uranium mission from cradle to grave, as it were, including owning the project that was being completed, or is being completed at Y-12 to get us out of building 9215 by the year 2025. Then a number of steps that he has taken has been to reduce as much as possible what we refer to as “material at risk,” potentially dangerous materials that are in aging facilities and get them into newer facilities, thereby decreasing some of the concern that we may have about the safety of aging facilities.

At the same time, we have adopted the Red Team’s approach to the construction of UPF. We are no longer going for a single big box building to house all the activities associated with uranium processing. It is a very simple assumption that we make, that if you have to build everything inside of one building, you have to build it at the highest margin of safety and security. And the cost per square foot is a lot higher at the top end of that spectrum than it is the lower end. So we segregate activities that are associated with uranium processing into facilities that have various levels of security and safety requirements.

So in the process, we have divided the whole project up into six subprojects. We just complete the site-readiness subproject, which is a part of the celebration that we will be at in a few days. We are well underway under the site infrastructure and services subproject. In fact, we expect to complete some of the paperwork to move forward on that this month, and then complete it in April 2018 at a total project cost of about \$78 million.

Then we will move into a site preparation and long-lead procurement phase. And then the final part of that, once we have achieved 90 percent design on each of the other projects, is we will move forward with building the segregated buildings I talked about before, a mechanical and electrical building to house air-conditioning, electrical facilities, and transformers. We will also have a salvage and accountability building. And finally, the main processing building, which will be that building which does the processes that require the highest safety and security margin.

Mr. FLEISCHMANN. Thank you, General. Mr. Chairman, I think I will wait for my final two questions until the next round.

Mr. SIMPSON. Ms. Roybal-Allard.

Ms. ROYBAL-ALLARD. Administrator Klotz, the Congress asked that there be an examination into the mission, organization, and management of the enterprise and to consider alternatives. First of all, there was no question with regards to the efficacy of the nuclear deterrent for the foreseeable future. And it also found that the stockpile, you know, was safe, secure, and reliable, and that the quality of science and research is undiminished.

However, it did find some areas of concern, and that was at the existing governance structure. And many of the practices of the enterprise are inefficient and ineffective, thereby putting the entire enterprise at risk over the long term. And as a result, the Augustine-Meese report made several recommendations that Congress could make to improve the nuclear weapons enterprise, such as

having the Senate Armed Services Committee and the Senate Energy and Natural Resources Committee approve the confirmation of the Secretary and the Deputy Secretary of the Department of Energy.

The report also recommended implementing information sharing and collaboration mechanisms to unify and strengthen its mission focus oversight across cognizant committees, and to better harmonize the direction and oversight across the enterprise mission areas.

My question is, what are your thoughts on these recommendations? And do you have any additional recommendations on how Congress might improve its handling of the nuclear weapons enterprise?

General KLOTZ. Well, let me answer that question directly, and then if I could say a little bit more about the report itself. I think we are very forward leaning and courageous people sitting at this panel, and in the NNSA and the DOE, but I think the last thing we would begin to do would be to tell the Congress how it ought to organize itself in terms of jurisdiction.

We read that part of the report with great interest. It is a good report. And we thank the people on the panel who have spent over a year of their lives contributing to this. It was a very distinguished and esteemed panel. They have come up with a lot of ideas. I think everyone at this table, as well as throughout the Department of Energy and NNSA, spent a lot of time with the two chairs as well as each of the panel members. As you point out, they come out with 19 general recommendations and 63 sub recommendations.

And we think those recommendations fall into three different categories: The first are things which the Department of Energy or the NNSA can implement now based on existing authorities. And indeed, since Secretary Moniz came into office now over a year, almost 2 years ago, many of the recommendations that fall into this category he is already moving out on, very, very smartly, in terms of program management, project management, security, relationship with the laboratories, changing the culture, thinking of the entire 17 laboratory as a single integrated whole.

Others of the recommendations are clearly beyond our purview. There were a number of recommendations that related to how the White House is organized and how the Congress is organized. And then there is probably a third category of things that would require legislative action in terms of changing the way in which we do business.

The Congress has asked that the NNSA, that the Administrator submit a report giving our views on this report. That is due on the 17th, I believe, of this month. We are in the process of writing that now. Like Dr. Cook mentioned earlier on a report he is looking at, I have looked at that multiple times over the last several weeks, and we will be forwarding it to the Secretary and the Deputy Secretary soon to get their comments before we send it over.

I might add, this is not the only report that is out there. There were a couple of other reports, another commission chartered by the Congress as well as by the National Academy of Sciences that

is doing also very, very good work by very knowledgeable and dedicated people to looking at how we can improve our processes.

Ms. ROYBAL-ALLARD. Okay. The report also recommended replacing a risk-averse culture with a risk-management culture. Changing the culture of any organization is, of course, very, very, you know, difficult. Do you think that there is a need to change that culture, and if so, do you have any thoughts on how you would go about that?

General KLOTZ. Yes, I do. But first of all, let me say, safety is always paramount in any of our operations. We are dealing with materials and chemicals that are inherently dangerous if not handled properly. So we have, as an enterprise, over decades developed processes by which we ensure that everything we do takes into account the safety of the operation, the safety of the people who are working on it, and the safety of the people who live in the community surrounding our laboratories and our production facilities. So we will always focus on ensuring safety. But at some point there has to be, you know, a management of the risks and exploring various alternative courses of actions about how you mitigate risk. Sometimes there are multiple options. And what we need to do, what I think, under the leadership now at the Department of Energy and the leadership in the NNSA is, we are empowering our people to say if they have a better approach as to how to deal with a safety concern, that they explore all the options, that they be fully vetted, and they don't necessarily need to jump at the first recommendation that comes up.

So it really is a question of managing risk, but that is what we mean by managing risk, is not diminishing the importance we attach to safety or our absolute requirement that we be as safe as we possibly can be, but to think about other ways of getting at the same objective.

Ms. ROYBAL-ALLARD. Thank you.

Mr. SIMPSON. Mr. Fortenberry.

Mr. FORTENBERRY. Thank you, Mr. Chairman. General Klotz, welcome. First of all, let me thank you for the very respectful and responsive manner in which you have dialogued with me and other members of the committee outside the formal structure here. It is very insightful for us to be able to gather expertise without the constraints of formality of time in a committee. So I am really grateful to you in that regard.

I recognize that you are hoping to delay nonproliferation discussions when we have committee hearings coming up in the next several weeks. However, let's consider this the preliminary round in that regard, because you are tasked with nuclear weapons stockpiles, nuclear nonproliferation, as well as nuclear naval reactors. But that second leg of the stool is absolutely so critical. We have tried to take a decided focus on it in order to dive deeper and really evaluate whether the entire architecture of the approach is creating the highest and best possible outcome, which is the prevention of something going wrong in the nuclear world, particularly the spread of nuclear weapons and that technology.

In this regard, there is a line in your overview here that says the nuclear nonproliferation program is also restructuring to place more emphasis on capabilities as opposed to specific programs. And

I think that actually hints at what I am talking about. This is when you are referring to the reorganization that you have done internally with some of your accounts. As an aside as well, what we have done as an office, and I think it reflects a creative effort on our part, but it also is a bit frustrating, because we cannot find a singular source—maybe there isn't one—which could give us a comprehensive overview of the various nonproliferation efforts across agencies.

Now, here is our attempt at it right here, which is about 25 different programs, some of which are under the umbrella of cooperative threat reduction; others are not; and then there are other related programs which are smaller that, again, don't appear in any strategic overview, a document that has a strategic overview. Maybe that exists; maybe it doesn't; maybe we have to talk about it in another setting. If it doesn't exist, I think it is confirmation of what I think—what I am concerned about, as well as what you are doing, trying to look at capabilities rather than just continuing to focus on specific programs.

That is fundamentally my commentary. I would like you to respond to that, because this is absolutely so critical that we continue to think constructively, creatively, in light of emerging threats, in light of constrained budgets, in light of not getting caught into what I call just inheriting legacies, because on the Appropriations Committee, we basically are confined to choosing whether or not to plus something up or to cut it. But the deeper question is, how do we get to its fundamental purpose maybe in a more effective way? Now, that involves authorizing committees as such, but this is, in my mind, an appropriate place to have this dialogue with you. So I will stop there and let you respond.

General KLOTZ. Well, thank you very much, sir, for the question, and thank you very much for your leadership in this particular endeavor. I was aware of it before I came into government, and I am delighted to have now the opportunity of being in this position to work more directly with you and your staff on this issue.

The defense nuclear nonproliferation part of our portfolio is an extremely important part of our portfolio. As we were discussing earlier, however, it is one that is often misunderstood, and it is often one that is overlooked. We have people working in countries, not just in Russia, where a lot of the effort has been over the past couple decades, but around the world to reduce the threat of nuclear proliferation and nuclear terrorism through a variety of programs and means that begin with the fundamental assumption that the one thing that a would-be proliferant or a would-be terrorist needs first and foremost is the special nuclear material that is associated with nuclear radiological devices. So if we can lock that down, if we can secure that down, if we can create security cultures which impose best practices, if we can get to the right diagnostic tools and things like securing borders, then we have dealt with a lot of that.

What we have done, which I hope will address some of your concerns about what sort of comprehensive presentation of this, is the Secretary of Energy made a decision that just as we put out a document known as the Stockpile Stewardship Management Plan every year, which goes in great detail about each of our life exten-

sion programs, our construction projects, our science and our research at the laboratories and at the production plants, we need to have a companion document that addresses this particular part of our mission. So at roughly the same time that the Stockpile Stewardship Management Plan is released, which will be in the next 2 to 3 weeks or so, we hope to be able to release a document which covers this.

What we have done, and as you rightly pointed out, there were a lot of programs that grew up in the aftermath of the collapse of the Soviet Union and the end of the Cold War that were focused on specific types of activities, a lot of them in the former Soviet Union or in Russia. We have taken, over the last couple of years, what we call an over-the-horizon approach to think about what are the threats in the area of nuclear proliferation and nuclear terrorism in the future that we need to be dealing with, a future in which more and more countries are pursuing the path of civil nuclear facilities. More and more countries will have access to this type of nuclear material. And these may be countries that do not have the security culture of working with these types of activities or materials.

So we have reorganized our office for doing that into broad general areas, material management and minimization, global material security, nonproliferation arms control, research and development, and we have also proposed changing our budget categories to move nuclear counterterrorism and incident response from the weapons activity account into the defense nuclear nonproliferation account. Under the firm belief that we need to approach this whole mission as a continuum that runs from preventing people from having access to nuclear radiological materials, and then, God forbid, if they do, countering that acquisition, and then, God forbid, if they ever use it, responding to their actions.

Mr. FORTENBERRY. Well, thank you, General, for that. Is the report going to look at this in depth in terms of what is under your authorities alone, or is it going to look at it through the lens of the multi-agencies that are involved with this?

General KLOTZ. The report, and, again, it is another report I have been spending my time reading over the last several weeks, will address the interagency work that is done. But beyond the interagency work, also the international work that is done, work that we do bilaterally with partner nations as well as work that we do with multilateral organizations.

Mr. FORTENBERRY. So this is going to be the place for the comprehensive understanding of the whole-of-government approach to nonproliferation?

General KLOTZ. We will discuss the whole-of-government approach, but as you rightly point out, there are other programs within the government, particularly in the Department of Defense, the Cooperative Threat Reduction Program, which, in the past was largely focused on nuclear, but over time is now focused more on chemical and biological threats to our security and the security of our allies. But the coordinating mechanism for work in this area by agencies is in the National Security Council staff as a congressionally-mandated, created organization. It performs the convening and the integrating work in this very, very important area. And I

have the highest respect for those people in the National Security Council who are working on this. They have deep experience and passion for this particular activity.

Mr. FORTENBERRY. Thank you.

Mr. SIMPSON. Mr. Calvert.

Mr. CALVERT. Thank you, Mr. Chairman. Administrator, thank you. Dr. Cook, General Davis, appreciate you being here. Thank you for your service.

I just want to carry on with what Mr. Fortenberry is saying, but more regarding the GAO report that came out recently, more about domestic radiological material, which I think, in some respects may be more problematic than some material overseas. It seems that we have this material everywhere because we can't seem to get together to build a central depository for this—I think we need to get around to that, but that is another subject—to better secure that material. But right now, as you know, that material is everywhere. And even those folks who had some issues about some material, I think some incidents between 2006 and 2012, where some radioactive material was stolen. And given the terrorist threats that we have, I also get to serve on the Intelligence Committee and get to listen to the threat assessments, and we may have the highest threat assessment since 9/11 right now; that is not a secret in itself. And so this material, it is advertised where it is located. Some of it is not secure as much as it should be, as I am sure you are aware. And a dirty bomb certainly could create some damage, but certainly a lot of panic.

General KLOTZ. Exactly.

Mr. CALVERT. And so where the Nuclear Regulatory Commission is responsible for licensing or regulating this, but I think your agency is a big responsibility to working with NRC to ensure the safety of these materials. Any comment about that, about how we are going to secure those domestic radiological sources?

General KLOTZ. Thank you. No, sir, you put your finger on a very worrisome issue. You are right, the NRC has the responsibility for regulating that particular aspect of it. But what we have, I think, in addition to the NRC, what we have is special technical insight into how to detect these types of materials, how to tell when they are being transported, how best to secure them, and also, how you can come up with alternative approaches to use of particular types of materials.

For instance, one of the things that we have been, we, the NNSA and the Department of Energy, have been leading is in the production of isotopes for medical purposes, moving away from using highly-enriched uranium in the production of those to using low-enriched uranium, thereby reducing the attractiveness, perhaps, of anyone who might want to try to acquire special nuclear material through that route.

But I should go back to this report that we discussed earlier. We have committed to your staff that we will brief them and you before we release this particular report. And there will be classified—you mentioned the intelligence aspect—there will be a classified annex to that, which will also be—obviously we can discuss in a more private setting.

Mr. CALVERT. It is my understanding that the NNSA is developing technology that would, if successful, improve tracking of radiological sources while in transit. Is that technology being developed? If not, what is the timeline of that?

General KLOTZ. Let me get back to you, sir, if I could, with specific details on that. But yes, the detecting, tracking, locating special nuclear materials is a longstanding scientific research and development activity of many of the NNSA labs, but not just the NNSA labs, the other laboratories—the 17 laboratories in the DOE enterprise.

In fact, I was just up at Idaho National Labs, along with some members of this Subcommittee, a couple weeks ago, and Idaho National Labs is one of the leading facilities in terms of doing this type of research, but also training people, not just from the United States, but from other countries in detecting radiological and nuclear materials.

Mr. CALVERT. And finally, Mr. Chairman, I would suggest that we find a suitable depository location. I think there is one in a part of Nevada to—

Mr. SIMPSON. Southern Nevada.

Mr. CALVERT. Southern Nevada. Close enough. You got no worry. To deposit some of this material.

Mr. SIMPSON. Thank you.

Mr. Valadao.

Mr. VALADAO. Thank you, Chairman.

Thank you for taking some time for us today. Overhead rates for fiscal year 2013 were 41 percent for Los Alamos, 61 percent for Lawrence Livermore, and 43 percent for Sandia.

Mr. Administrator, in the past, Congress, has expressed concerns of the high overhead costs of the NNSA's national laboratories. These overhead expenses are charged to each program, project and activity for the infrastructure, general and administrative, laboratory research and development, pensions and other costs which are paid out of an indirect cost pool. While this a valid accounting structure to pay for costs, there is very little insight into what is being paid out of these indirect cost pools since they are entirely managed by the contractor. These rates and the resulting size of these indirect cost pools are approved annually by you, the administrator, and represent a very large percentage of your budget costs.

What insight do you have into the costs that are being paid from these contractor managed indirect cost pools?

Mr. COOK. Let me address this. It has come up a couple of times. A piece of this is LDRD, and I would like to address that head on. In fact, I will give a point of concern in this regard. Because of the pressure that we have with regard to funding the life extension programs and the stockpile maintenance for an increasingly aged stockpile, we have never had a stockpile this old, then because of those pressures, we actually had to reduce our RDT&E account.

If you looked at the 2015 request compared to the 2016, we did not have increases, we reduced over the FMCSA period about a third of a billion dollars in that area, coupled with the reduction in the LDRD, you could call it overhead rate, it is a tax, from 8 percent to 6 percent. That coupled effect means that we are focus-

ing very well on the short term, but to an extent at the expense of the long-term.

Now, that is a part of the overhead. We have achieved savings, we have articulated those to the Department of Defense, we have worked those in a report that has come back here. So that if you look at the ratio of the overhead to direct expenses and if you understand that RDT&E coupled with a reduction in LDRD gives us a long-term concern, you can actually see a trend that is downward, not upward, but at the same point, I want to address that that is a concern.

I would be happy to take a follow-up question if you wanted to.

If I could add one more point, just to help thinking about LDRD, almost everything of importance in the nuclear deterrent, in the weapon program originated in LDRD and then it moved to R&D. The radar in the B-61, the W-88, the W-87 all came from LDRD. If we look at things like the future LEPs, most of the components came out of LDRD. We saved the better part of, I would just roughly estimate it, \$1 to \$2 billion by doing the research and development to determine how long plutonium pits last. That is tied to the overhead in that it is tied to LDRD. But I just wanted to emphasize that point.

Mr. VALADAO. Thank you.

Yield back.

Mr. SIMPSON. Ms. Kaptur.

Ms. KAPTUR. Thank you, Mr. Chairman.

Administrator Klotz, in this new foundation for the nuclear enterprise, there is a sentence right before the end that says that fundamental void is the lack of an affordable executable joint DOD-DOE vision, plan or program for the future of nuclear deterrence capabilities.

Do you agree with that?

General KLOTZ. No, I don't. And I recall—I recall that sentence. There is a—

Ms. KAPTUR. That is a pretty strong sentence.

General KLOTZ. There are a series of directives that come from the White House, that come from the Department of Defense that lay out in some—they are—and most of them are classified, the Nuclear Posture Review was not, but many of the other documents are, that taken as a body provide direction, and very clear direction, I might add, to virtually all of our activities, from our work on the life extension programs, to the size of the stockpile, to the characteristics and nature of the stockpile, but also to the delivery systems.

So I think if—while you may not go to, you know, one particular piece of paper that lays all that out, my sense would be that across these half dozen or so documents, every element of what we do is very clearly articulated.

Would you—

Mr. COOK. Yeah.

Ms. KAPTUR. Please, Dr. Cook.

Mr. COOK. If I could follow up. The way in which the stockpile stewardship and management plan has evolved over the last 5 years, half decade, has been increasingly with participation of all the other elements that are outside of NNSA as well. Right now

we will issue, as the Administrator said, in about 3 weeks a major revision of the plan. In the other year, we do an update, but this will have a major revision. All elements, DOD policy, DOD AT&L, the Airforce, the Navy, the Joint Staff's Strategic Command, and NNSA all look at that document to integrate those aspects of the nuclear warheads that couple to the platforms. That is in one document. And they actually provide some of the writing in some of the parts. It undergoes review by OMB, it undergoes review within the Nuclear Weapon Council. And I think if there is one place to look, you can look at that.

There are other plans for platforms that are connected—again, I would offer General Davis the opportunity to comment with regard to this—and by the nature of what we mentioned earlier, inviting the services into the quarterly reviews we do for every single life extension. We have given such transparency, that they are no longer stating any concern about transparency. In fact, it takes a lot of their time to come over to the Forrestal building so often to go through these reviews that we have enjoined them in.

Ms. KAPTUR. Do you agree with the report's recommendation that a new name be assigned to the Department, the Department of Energy and Nuclear Security?

General KLOTZ. Personally—we haven't put out the report yet, our response on March 17. I think Department of Energy sounds just fine.

Ms. KAPTUR. Okay. The report also says that there was a lack of an urgent and clear mission and lack of follow-through in assuring adequate performance to modernize the nuclear stockpile. When we look at the amount of money that has been spent over the years, I guess there is a question of whether there was adequate—it doesn't appear that there was inadequate funding, but with the cost overruns and so forth in so many accounts, something happened to performance?

General KLOTZ. Well, indeed. And that is one of the things which, as I indicated earlier, since Secretary Moniz has come in and now that you have leadership in the NNSA, that we have been focusing like a laser beam on, in terms of improving and empowering the role of our program managers for the various activities we have, the life extension programs, the various commodities, uranium, plutonium, tritium they have to deal with, as well as project management.

Three years ago the NNSA created a new organization called the Office of Acquisition and Program Management, which has brought a level of expertise, experience and discipline to the process of project management and acquisition that we probably did not have in the NNSA or within the DOE before.

Ms. KAPTUR. Do you think that one of the problems with the overspending is that the talents no longer existed in our country or that the componentry was not able to be built, that there was a very shallow bench, or that you just didn't have people who were capable, which is what you are saying?

I am wondering if you look at back and sort of sum it up, what happened? What happened with the amounts that were appropriated but then, you know, oh, gosh, we don't have the correct amount there, you know, add some more, add billions on more

here? What do you—where do you—how do you encapsulate that for the American people so they understand what happened?

General KLOTZ. Well, again, there are a number of reasons why costs go up. What I suggested earlier was that within the Department and within the NNSA in particular, there was not what we might refer to as regular order, and the way in which other Departments, take the Department of Defense, addressed the whole question of acquisition and project management, and the tools and the discipline and the process by which they go through to ensure that cost and schedule are met, from having various alternatives which are analyzed, from cost estimation, to the actual program and project management, which are both science and art, and that didn't exist.

But within the Department and within the NNSA and within our field offices, we are building that type of capacity. It is not something we can turn on and off like a light switch. We have to recruit the people, we have to rely upon the good offices of the U.S. Army Corps of Engineers to provide us augmented capabilities in this area, but we are beginning to see some success in terms of the work that has been done in this area. For instance, the GAO has taken us off their list of high risk projects for all projects \$750 million and below.

Now, we still have three projects that cost more than \$750 million that are on the high risk list, and those are the ones which we are, again, focusing on and getting control in terms of our approach, our analysis of alternatives, our cost estimation, and holding both the Federal—those who are responsible for Federal oversight as well as the contractors accountable.

Now, in terms of specific life extension programs—

Mr. COOK. Sure. Let me try and answer quickly and then get ready to turn it over to General Davis. I saw the commission develop as well. I think to an extent the comment that you read, Representative, might be a bit of a dated comment. And so it took a couple of years to really form up the review.

In that period of time, we have made considerable progress. I mentioned earlier the formality we brought in to the life extension projects. And if I could comment, there is a difference between the LEPs and then nuclear construction. In fact, America has not done much nuclear construction, and so the Administrator, certainly my colleague, Bob Raines, and others found that the nuclear construction which we need to do for some of these projects does not exist in industry, getting qualified vendors, who are in short supply, is difficult.

Turning back to the stockpile, we have made some alignments the better part of a year ago with General Davis, so the stockpile—in defense programs, I have six organizational units, three of them are now firmly aligned with General Davis: the stockpile that we have, the life extension programs, and also the Office of Secure Transportation, which you don't hear about very often, and that is a really good thing. They perform every day some very critical tasks.

Ms. KAPTUR. And you are asking for more money for them, I think, here.

Mr. COOK. We are. We are. We took some reductions in a couple of years, and—

Ms. KAPTUR. 14.9 percent.

Mr. COOK. Yes. In that area, we need to now begin the work to refresh or change from the safeguard transporters that we have to a new transporter that will have, again, important security features that are updated.

But the disciplines that we have included, both in the stockpile for the life extension programs and acquisitions and in construction, I think, are substantially different today than we had 3 or 4 years ago. Still 2 years ago, the view was that we were mobing, but we have arrived to a point where we needed to. I am fairly confident that on the LEP side, we have got good actions occurring now. And the construction is shaping up just fine, in my view.

General KLOTZ. Well, two examples.

Mr. SIMPSON. Very briefly.

General KLOTZ. We delivered a new modern plant at Kansas City, moving out of the Bannister Road complex that was built during the second world war, into a facility that is half the size and much more efficient and much more environmentally friendly, facility.

We also delivered the high explosive pressing facility through the good offices of the Army Corps of Engineer at Pantex, in Amarillo on time and on budget. So, you know, we are starting to make progress in this area. We still have a lot of work to do, we still have a lot of bench strength we need to build within our organizations, but I think we are on the right path.

Ms. KAPTUR. Are we not educating people?

Mr. SIMPSON. Very briefly.

Ms. KAPTUR. They just don't want to—

Mr. SIMPSON. Very briefly.

Ms. KAPTUR [continuing]. Come to—

Mr. SIMPSON. Excuse me.

Ms. KAPTUR. They just don't want to come back to the—they don't want to work for the government?

Mr. SIMPSON. I need to see if any other members—we are voting now and we have a few minutes left before the vote. If there are any other members that have any brief questions that they could ask for—Mr. Visclosky?

Mr. VISCLOSKY. Mr. Chairman, thank you very much.

I have several questions for the record, if I could, but just want to, while you are here, emphasize that the great concern about the potential disposition of radioactive metal, particularly steel, into the market, and the potential disruption to the domestic supply, given consumer concerns.

And, Dr. Cook, again for the record, in relation to the answers you gave to the gentleman from California on overhead costs, I did not clearly understand your answer. That is my fault, not yours, but the question I guess I would ask for the record is whether or not, in fact, you would agree with the Inspector General's assertion that there is potentially a significant unallowable cost way that overhead is computed.

And, secondly, I appreciate the contributions that have been made by lab-directed research, but I understand there is a statu-

tory maximum of 6 percent, and that today we are at 10 percent, and that there is a deadline to be met by October 1st, if I am correct?

Mr. COOK. Could I—could I address those?

Mr. VISCLOSKY. And just again for the record, to the extent we have the time.

Mr. COOK. Okay.

Mr. SIMPSON. I appreciate that. There will be other questions that come for the record.

One thing I do want to ask you before you go, and you will probably have to answer this for the record also, but I am sure there will be other questions coming, the subcommittee requires the Department to provide an independently verified cost estimate for every construction project that exceeds \$100 million. This estimate is important for the subcommittee, as it helps determine whether the project is affordable before we can commence construction. You have provided a project strategy for the uranium processing facility that envisions significant funding being appropriated for construction in advance of setting the project baseline. In fact, you have already issued a pre-solicitation to begin some of these activities in fiscal year 2015 before completing a conceptual design of the facility.

Why should Congress provide funding to begin construction activities before we have a verified cost estimate? And in your budget justification, it lists a whole bunch of “to be determined” and “not applicable”. And will you be able to provide an update of those project cost sheets for the record?

General KLOTZ. We will.

Mr. SIMPSON. Okay. And you can answer the rest of it in—

General KLOTZ. Yes, sir.

Mr. SIMPSON [continuing]. In the submission, because I hate to have you stay here for an hour while we go over and vote. That is not a good time of ours or yours, so—

General KLOTZ. I appreciate that.

Mr. SIMPSON. I do appreciate you coming today to discuss this with the subcommittee. As I said, please have the responses to the questions and the information requested in within 4 weeks as we start to put together a budget. And we will see you again when we start talking about non-proliferation and other activities.

General KLOTZ. All right. Look forward to it.

Mr. SIMPSON. Thank you all.

General KLOTZ. Thank you.

Mr. COOK. Thank you, Mr. Chairman.

Mr. SIMPSON. Committee is adjourned.

QUESTIONS FOR THE RECORD
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
HOUSE COMMITTEE ON APPROPRIATIONS

**Hearing on the 2016 Budget Request
for Weapons Activities
Wednesday, March 4, 2015**

CHAIRMAN'S QUESTIONS

DEFENSE BUDGET PRIORITIES

Chairman Simpson. Mr. Administrator, the overall NNSA budget request is \$12.6 billion, an increase of \$1.2 billion from the fiscal year 2015 enacted level. However, the President's Budget Request for defense activities is \$38 billion over the caps - meaning some tough decisions will need to be made.

What is your understanding of the priority of the NNSA's program within the larger defense plans of this Administration?

Assuming there were no additional defense funds coming to the Energy and Water bill for fiscal year 2016, what activities would you like to highlight as the most essential in this budget request?

Administrator Klotz. The President's FY 2016 Budget Request proposes \$12.6 billion for NNSA to meet its nuclear security missions. This level of funding for nuclear security requirements was determined in coordination with the White House, Department of Defense, the Intelligence Community, and others in the interagency. The 2016 Budget proposes to reverse sequestration, paid for with a balanced mix of commonsense spending cuts and tax loophole closers, while also proposing additional deficit reduction that would put debt on a downward path as a share of the economy. The President has made clear that he will not accept a budget that reverses our progress by locking in sequestration going forward. Locking in sequestration would bring real defense and non-defense funding to the lowest levels in a decade. It would damage our national security, ultimately resulting in a military that is too small and equipment that is too old to fully implement the defense strategy. It would also damage our economy, preventing us from making pro-growth investments. As the President has stated, he will not accept a budget that severs the vital link between our national and economic security, both of which are important to the Nation's safety, international standing, and long-term prosperity.

NEW LIFE EXTENSION PROGRAMS - LONG RANGE STANDOFF MISSILE (LRSO)

Chairman Simpson: Mr. Administrator, there is one new “life extension program” (LEP) for the W80-4 warhead as part of the plan to produce a new nuclear-tipped cruise missile - the Long Range Standoff missile or LRSO.

Can you tell us why the LRSO program has been moved up 2 years in your stockpile plans and what will be the total cost of this life extension program? The lifespan of the current cruise missile is good until at least 2030. What is driving the schedule?

Previous life extension programs were only funded around \$40-50 million per year at this early stage in the acquisition program. The request for the W80-4 LEP is \$195 million. Why is this effort so much more expensive than previous LEPs?

Administrator Klotz: The Long Range Standoff (LRSO) Program is a Department of Defense program to produce a cruise missile which will carry the W80-4 warhead. The W80-4 program was moved up two years to meet the U.S. Strategic Command (USSTRATCOM) stated requirement for first production of the warhead in FY 2025 to better align with Air Force plans for the missile and to reduce risk on various warhead aging problems. Design and production activities leading up to first production of the warhead are planned to take 11 years starting in FY 2015. Our current estimates of the total cost of this life extension program are between \$7 billion and \$9.5 billion as published on pages 8-15 in the FY 2016 Stockpile Stewardship and Management Plan (SSMP). The FY 2016 NNSA budget request was developed to support the USSTRATCOM requirement. The Nuclear Weapons Council, the Department of Defense, and NNSA supported this prioritization and agreed to adjust the funding profile accordingly.

It is most appropriate for USSTRATCOM to answer the question about schedule drivers but NNSA and the Air Force jointly note that the current cruise missile is beyond its original service life. The current missile entered service in 1982 with a 10-year design life, and continuing missile life extension programs are required to keep the missile viable. Threat capabilities have greatly increased since the current missile entered service, and USSTRATCOM and the Air Force are concerned with missile survivability given future and evolving threats. Lastly, the Air Force stockpile of missiles is decreasing due to surveillance consumption. The LRSO program is intended to address all these issues.

We learned from the B61-12 that we funded technology maturation late and increased program risk. We are planning to fund efforts for the W80-4 starting in FY 2016 to prevent or reduce technology maturation risks similar to those experienced by the B61-12. Also, significant portions of the B61-12 and W88 Alt 370 technology maturation funding were located in other NNSA programs. In the NNSA FY 2016 President's budget submission, similar funding is programmed into the W80-4, but will be appropriately broken out in future years. The relatively recent decision to change the W80-4 schedule came too late in the budget process to identify the other program funding breakouts prior to submission. Finally, the W80-4 Program will execute a 2-year Feasibility Study compared to 3 years for the B61-12. This relatively compressed schedule requires higher per-year funding to complete similar work scope.

NEW LIFE EXTENSION PROGRAMS –W88

Chairman Simpson: Mr. Administrator, there is also another major effort called the W88 Alteration 370. The W88 work is slated to be performed simultaneously with production of the B61. This effort was initiated in fiscal year 2014 with a total program cost of about \$1.2 billion. You are proposing to expand that scope to include the refurbishment of additional components that will provide greater reliability for a longer period of time. As a result, there are significant increases in the costs attributed to the W88 Alt in this budget request. There is also another \$400 million in additional costs under “W88 Stockpile Systems” that you are not including in the total costs quoted in your acquisition reports for the W88.

What is the total cost of the work you need to accomplish on the W88 as part of this refurbishment?

What is the difference between a “life extension program” and the total scope you are planning to accomplish on the W88? Why haven’t you aggregated the total costs and reported them as another life extension program?

Knowing that the W88 scope is now expanded, how do you expect to accomplish simultaneous production of two life extension programs? Do you believe this will be a challenge and how do you expect to deliver on these plans?

Administrator Klotz: The current total estimated cost is found in the table provided below, and also reported in the FY 2106 Stockpile Stewardship and Management Plan. NNSA is currently completing a weapon design and cost report that will refine the anticipated cost of the Conventional High Explosives (CHE) refresh scope. This will be reported in future Selective Acquisition Reports (SARs) to Congress.

Table 1. Total estimated cost for W88 Alt 370

FY 2015–2025 (Dollars in Millions)	NNSA		DOD	
	FY 2015 Dollars	Then- Year Dollars	FY 2015 Dollars	Then- Year Dollars
High	2,690	2,928	981	1,072

Low	1,922	2,081	826	899
Budget Requirement a	N/A	2,579	N/A	986

The W88 Alt 370 SAR has not yet been updated to reflect the addition of the Conventional High Explosive Refresh scope. What is reflected here is based on FY 2016 FYNSP numbers and the Office of Cost Analysis and Cost Assessments cost models.

The scope of a life extension program (LEP) is intended to allow NNSA to certify a “new, extended” life for a warhead. For example, the B61-12 Program will have a “new, extended” service life following its entry into the stockpile. The scope of the W88 Alt 370 LEP does not address all that would be necessary to extend the life of that warhead. The original W88 Alt 370 scope included design, development, qualification, production, and surveillance of the W88 reentry body with new arming, fuzing and firing (AF&F); lightning arrestor connector; trainers; flight test assemblies; and associated handling gear and spares. Recently, the Nuclear Weapons Council (NWC) authorized the replacement of the W88 conventional high explosive (CHE) refresh to address a technical concern (details available in a classified forum) identified during stockpile surveillance. The CHE refresh is to be conducted coincident with the Alt 370 Program to minimize further logistical burdens on the U.S. Navy, and to minimize costs by using currently planned testing with minor modifications for the collection of CHE refresh data. The W88 Alt 370 was originally scheduled to be conducted in conjunction with the planned limited life component exchange of its gas transfer systems (GTS) and neutron generators (NGs) to minimize the logistic impact on the Navy. Funding for GTS and NG exchange is funded in the W88 Stockpile Systems line, which also funds surveillance and assessment of that warhead.

The addition of the CHE refresh scope to the W88 Alt 370 Program will not impact the production schedule of either the W88 Alt 370 or the B61-12. We have examined the workload at Pantex and the other NNSA production plants to ensure those facilities can support the proposed production schedules. Additionally, the W76-1 LEP will be complete in FY 2019 and will free facility and personnel resources to fully engage on the W88 Alt 370. A key aspect of the simultaneous production program is that the W88 uses conventional high explosive while the B61-12 uses insensitive high explosive (IHE). The different characteristics of

these high explosives result in performance of work on the two weapons in different Pantex locations using different procedures. The use of IHE in the B61-12 also allows greater flexibility for processing those units. The W88 Alt CHE rebuilds, which will begin in FY 2020, will take place in Pantex production facilities used by the W76-1 Program (also a CHE warhead), which will end in FY 2019.

MANAGEMENT OF MAJOR PROJECTS

Chairman Simpson: Mr. Administrator, the Government Accountability Office (GAO) recently released its High Risk List for 2015. The GAO review indicates that while the Department of Energy has generated a report that claims the completion of the corrective actions it identified to address its issues in project management, the NNSA is still struggling to stay within cost and schedule estimates for its major projects. GAO also reported that progress had not been made over the last year compared to what was observed for the management of smaller projects in previous years.

Do you believe that the NNSA's major projects are now on a path to success?

What are your views on how to fix the NNSA's persistent problems with its projects and how will the actions you are taking address the root causes of the project management problems?

Administrator Klotz: We are on a path to success in major project management. Over the past four years, NNSA has focused on putting the right policies, principles, people, processes, procedures, and partnerships in place to implement the Office of Management and Budget's (OMB) Circular A-11 for Capital Asset Acquisition Projects, Department of Energy Order 413.3B on project management, and the Secretary's January 2015 enhanced project management policies. NNSA is confident that the same policies and processes that allowed GAO to narrow the focus of the High Risk List are scalable to the Major System Acquisition projects.

On CMRR and UPF, NNSA is in the process of developing high quality credible estimates utilizing NNSA's policies and procedures and GAO's best practices. Once these complex first-of-a-kind nuclear projects achieve 90% design maturity, NNSA will establish cost and schedule baselines that we are confident we can achieve.

NNSA is committed to improving its discipline in implementing federal and departmental acquisition and project management policies, including the Secretary's Improving Project Management policy priorities. In particular, NNSA will continue to improve the following:

Appropriate front-end planning – including achieving 90% design completion on complex nuclear work – and requirements definition is conducted before establishing a project baseline;

Project staff are appropriately sized, skilled, trained, experienced, and certified;

High quality cost estimates are established utilizing NNSA's Cost Estimating Business Operating Procedure, which implements GAO's 12 Steps for a High Quality Cost Estimate;

Independent analyses of alternatives are conducted;

Acquisition strategies are executable within funding;

Project peer reviews are conducted regularly and are independently reported to the Principal Deputy Administrator;

Program and project owners are identified, and roles and responsibilities are clearly defined;

Contract vehicles and incentives align with taxpayer interests; and

Contractors are held responsible and accountable for delivering capital asset projects in accordance with the terms and conditions of the contract.

URANIUM PROCESSING FACILITY

Chairman Simpson: Mr. Administrator, one of the root causes the Department of Energy identified for its project cost growth was that construction activities were starting before the designs had been matured and before Department had an accurate estimate of its costs.

The Subcommittee requires the Department to provide an independently verified cost estimate for every construction project that exceeds \$100 million. This estimate is important to the Subcommittee, as it helps determine whether the project is affordable before we commence construction. You have provided a project strategy for the Uranium Processing Facility that envisions significant funding being appropriated for construction in advance of setting the project baseline. In fact, you have already issued a pre-solicitation to begin some of these activities in fiscal year 2015 before completing a conceptual design for the facility.

Why should Congress provide funding to begin construction activities before we have a verified estimate of the costs?

How is the process you are pursuing consistent with your own 413 project management process?

Administrator Klotz: The Department is committed to constructing UPF at a cost no greater than \$6.5 billion as reported to Congress by the Secretary in DOE's March 2015 Report to Congress on Improving Management of the Uranium Program. We will not begin construction of the nuclear facilities until 90% design completion has been reached, and we have an approved cost and schedule baseline. Our execution plan is based on completing several infrastructure subprojects in advance of the major nuclear construction work. Each of the subprojects will not begin construction until they have approved CD-2 cost and schedule baselines and meet all DOE Order 413.3B requirements for CD-3, approval to start construction. In accordance with DOE Order 413.3B, we will conduct an independent cost estimate for each individual subproject during the CD-2 approval process. It is important that we proceed with the infrastructure subprojects that allow us to prepare the project site for the major construction work once their designs are completed.

We recently completed the first phase of infrastructure work relocating Bear Creek road and site utilities through the Site Readiness subproject, which was delivered \$20 million under budget. The next step in the process is to move

forward with the Site Infrastructure and Services subproject, which we just established a cost and schedule baseline for on March 12, 2015 and provided Congressional notification in accordance with Section 2753 of Title 50 of the United States Code. Waiting for the entire project design to be completed and all work baselined is not a requirement of DOE Order 413 and would put our \$6.5 billion cost commitment at risk.

The UPF project is being managed in accordance with DOE Order 413.3B, which encourages breaking larger projects into smaller component projects. The Order says that for some projects, it may be appropriate to phase the work (into smaller, related, complete and useable projects) and split or phase the critical decision process. Each smaller project must have its own distinct performance baseline (CD-2) with clearly defined and documented scope, cost, schedule and funding profile including consideration for all applicable contingencies. The large project (aggregated) CD-2 value is finally established when the final subproject achieves CD-2 approval. At that time, the large project's CD-2 value equals the total value of each of the original CD-2 values for each of the smaller projects combined. In accordance with DOE Order 413.3B, we will conduct an independent cost estimate for each individual subproject during the CD-2 approval process. As a part of the 413.3B process each smaller project will have a verified estimate of their costs prior to the initiation of construction activities.

CROSSCUTTING PLUTONIUM AND URANIUM INFRASTRUCTURE PLANS

Chairman Simpson: Mr. Administrator, another area of significant increase in the NNSA's budget request supports the plutonium and uranium infrastructure. This budget request contains significant funds across various lines for these efforts, and you've proposed new funding lines for a subset of these activities within "Nuclear Material Commodities." These investments will be significant and take many years to accomplish. Last year's Stockpile Stewardship plans painted a general picture of the needs, but it's difficult to understand the costs beyond those reported for the large projects.

Can you summarize the overall funding in this budget request for recapitalization of the plutonium infrastructure, as well as provide a separate crosscut for the uranium infrastructure?

What is the goal of these modernization plans? Over what period of time and at what total cost are you proposing to accomplish those plans?

What are you doing to integrate the management of all these moving parts and when will you provide a more formalized and integrated plan?

Administrator Klotz: The funding in the FY 2016 budget request most directly aligned with the plutonium strategy for sustaining our plutonium infrastructure and capabilities is shown in the table below.

TY \$ (Millions)	FY15	FY16	FY17	FY18	FY19	FY20
DSW-Nuclear Commodities- Pu Sustainment	132	175	180	141	156	177
RTBF- Construction						
15-D-302, TA-55 Reinvestment Project, Phase 3, LANL	16	18	21	23	18	13
12-D-301, TRU Waste Facilities, LANL	7	0	0	0	0	0
11-D-801, TA-55 Reinvestment Project, Phase 2, LANL	10	4	0	0	0	0
07-D-220, RLWTF Upgrade Project, LANL	0	12	0	0	0	0
07-D-220-04, Transuranic Liquid Waste Facility, LANL	8	41	17	9	0	0
04-D-125, CMRR Project, LANL	36	156	160	181	216	240
Total	208	405	378	354	389	429

The funding in the FY 2016 budget request most directly aligned with the uranium strategy for sustaining our uranium infrastructure is as shown in the table below.

TY \$ (Millions)	FY15	FY16	FY17	FY18	FY19	FY20
DSW-Nuclear Commodities- Uranium Sustainment	0	33	31	29	28	30
Advanced Manufacturing-Processing Technology Development	20	18	20	22	28	29
RTBF0-Construction-06-D-141, Uranium Processing Facility, Y-12	335	430	500	515	520	525
Total	355	481	550	566	576	584

The goal of both the plutonium and uranium strategies is to sustain the capabilities required to support the stockpile. For plutonium capabilities, this means executing activities needed to cease programmatic operations in Chemistry and Metallurgy Research (CMR) by 2019, and to produce 10 war reserve pits in 2024, 20 war reserve pits in 2025, and 30 war reserve pits in 2026, on our way to 50-80 war reserve pits per year by 2030. For uranium capabilities, this means ceasing enriched uranium programmatic operations in 9212 no later than FY 2025. This will be accomplished through the UPF line item construction project capped at \$6.5 billion and additional program investments. Sustaining both sets of capabilities involves a broad range of activities such as manufacturing technology development, “house cleaning” efforts to reduce material at risk, infrastructure and equipment replacement and relocation, and new construction (such as a Uranium Processing Facility [UPF], Chemistry and Metallurgy Research Replacement [CMRR]-REI2 and PEI, and proposed modules at Plutonium Facility [PF]-4). Total cost over the FYNSP for these efforts is currently planned at \$2.2 billion for plutonium modernization and \$3.1 billion for uranium modernization. There is considerable uncertainty in out-year funding requirements for these efforts since many of the projects are in the early phases of design, or, as in the case of proposed modules at PF-4, have not begun design activities. Detailed planning for the cost, schedule, and integration of all these activities is still on-going.

To oversee and integrate the planning and execution of all these activities, NNSA has appointed Federal Program Managers for uranium and plutonium (along with tritium commodities) to develop and implement the associated strategies. The Plutonium Infrastructure Strategy for Defense Programs was approved in January 2014 and the Uranium Mission Strategy was approved in September 2014.

PROJECT DATA SHEETS

Chairman Simpson: Mr. Administrator, new construction projects represent \$703 million of your budget request, but the budget request provided few details on these projects. In the places where you are supposed to report the details of your funding plans, your budget simply states this information is “TBD” or “not applicable.” The Subcommittee needs this information to properly evaluate your budget request. Are you able to provide an update of those project data sheets for the record?

Administrator Klotz: On March 31, 2015, the Associate Director for External Coordination for the Department of Energy provided the House Energy and Water Development subcommittee staff with updated construction project data sheets for NNSA projects that had “N/A” in the Appropriations and Obligations columns in their Financial Schedule tables. The “N/A” entries were replaced with dollar amounts in FY 2016 and prior years, and the outyears where that information was known.

COMPARATIVE DEFENSE COSTS OF MODERNIZING THE CRUISE MISSILE

Subcommittee: Mr. Administrator, the NNSA previously commenced a life extension program of the W80 that would have cost under \$2 billion, but canceled the program pending further work to clarify the strategic requirements for a nuclear cruise missile. Now, the LRSO program has been proposed and the costs of the W80-4 life extension program have been reported to vary from around \$7 to \$11 billion. That's just on the NNSA side and does not include the Air Force costs for the missile itself.

What is the current estimated cost for the NNSA's W80-4 life extension program?

Did the Nuclear Weapons Council compare the cost of modifying the W80 warhead to support the LRSO to the cost of simply modernizing the W80-1 and the ALCM when it set the requirements for the LRSO?

Were cost tradeoffs considered or were defense requirements generated in the absence of any cost comparisons?

Administrator Klotz: The total planning estimate for the W80-4 Life Extension Program (LEP) is between \$5.8 billion and \$7.8 billion, as documented in the FY 2016 Stockpile Stewardship and Management Plan. Planning estimates are updated annually.

Since the decision had already been made by the Department of Defense (DOD) to replace the Air-launched Cruise Missile (ALCM) with the Long Range Standoff (LRSO), the down-select process for the warhead selection did not consider alternatives that involved modernizing the W80-1 and the ALCM. However, prior to the warhead down-select process NNSA participated in an Air Force Analysis of Alternatives which considered modernization of the ALCM.

Cost tradeoffs were considered throughout the down-select process for the W80 warhead. The Air Force Analysis of Alternatives also identified the B61-12 and W84 as candidates for the cruise missile warhead. NNSA briefed the Nuclear Weapons Council on comparative costs and performance characteristics of these alternatives in late 2013 to inform down-select decisions.

NEW NUCLEAR CAPABILITIES

Subcommittee. Mr. Administrator, development of the Long Range Standoff (LRSO) missile will improve the military's long-range strike capabilities compared to the current Air-launched Cruise Missile (ALCM). Improving our military capabilities to meet the latest threats is incredibly important. However, with respect to nuclear capabilities, the Administration stated in its 2010 Nuclear Posture Review Report that "the United States will not develop new nuclear warheads" and life extension programs "will not support new military missions or provide for new military capabilities."

Will the advancements made to this missile mean that the warhead will support new military missions or provide new military capabilities?

Administrator Klotz. The policy you reference pertains to nuclear warheads and life extension programs. The Phase 6.1 Report for the W80-4 program, including draft Military Characteristics and stockpile-to-target sequence was completed in June 2015. The program will integrate the warhead with the replacement missile platform and address warhead component aging concerns and military requirements for reliability, service life, field maintenance, and surety. The program will not support new military missions, or provide for new military capabilities.

Subcommittee. Does this statement of the policy of the United States still apply with the production of a nuclear-tipped LRSO?

Administrator Klotz. Yes. A number of documents provide the policy framework for the current NNSA stockpile mission. These are the President's *National Security Strategy* (February 2015), the New Strategic Arms Reduction Treaty (New START), the 2013 Presidential Policy Directive, *Nuclear Weapons Employment Guidance* (PPD-24), and the 2010 *Nuclear Posture Review*. The statements of policy in these documents apply with the production of a nuclear-tipped Long Range Standoff (LRSO) missile.

Subcommittee. Are there any concerns that perceptions of this program by other nuclear weapons states may have adverse impacts on our strategic stability?

Administrator Klotz. Since the W80-4 Life Extension Program (LEP) is intended solely to address warhead component aging concerns and military requirements for reliability, service life, field maintenance, and surety; and the

program will not support new military missions or provide for new military capabilities, there should be no concerns that perceptions of this program by other nuclear weapons states may have an adverse impact on our strategic stability.

DOMESTIC URANIUM ENRICHMENT

Subcommittee: Mr. Administrator, your fiscal year 2016 budget request includes \$100 million to continue operating uranium enrichment centrifuges that were constructed as part of a joint demonstration project. There are no milestones or programmatic goals associated with this effort and the Department has yet to provide more than a basic sketch of when newly enriched uranium will be required to meet defense needs. There is an interagency review in progress that is supposed to be performing analysis to verify those requirements. In the meantime, this budget request adds another \$100 million to keep these centrifuges spinning while the Department continues to deliberate.

How would you evaluate the progress made by the interagency review to understand the minimum uranium and tritium requirements?

What do you believe to be the best use of taxpayer dollars to meet those requirements?

Is there a time horizon that dictates the technology to achieve a domestic enrichment capability? That is, if you find there is 20-30 years before this capability is required, would the NNSA recommend proceeding with constructing a national security train?

Administrator Klotz: The Department is making progress in evaluating national security enriched uranium requirements. Tritium requirements are detailed in the FY 2016 Stockpile Stewardship and Management Plan in section 2.4.6.2 and in the classified annex section 2.4.3.

The Department intends to provide a report to Congress that includes an accounting of the current and future availability of enriched uranium and tritium to meet defense needs; a cost-benefit analysis of each of the options available to supply enriched uranium for defense purposes, and a preliminary cost and schedule estimate to build a national security train. At OMB request, NNSA is being aided by DOD/CAPE to assist the Department in providing independent cost and schedule estimates. This report will inform discussions regarding the path forward for meeting U.S. tritium needs.

The Department intends to provide the report to Congress in the near future as required by the Consolidated and Further Continuing Appropriations Act, 2015. DOE/NNSA will weigh all the factors into its recommendation including the

earliest need date for an enrichment capability, the required enrichment capacity, and the maturity of the available technology, and the likelihood of securing funding for the construction and operation of the domestic uranium enrichment capability.

NNSA GOVERNANCE ADVISORY PANEL

Subcommittee: Mr. Administrator, a key recommendation of a recent Congressional Advisory Panel on the Governance of the National Nuclear Security Enterprise is to better integrate the National Nuclear Security Administration within the Department of Energy, rather than continue with the “semi-autonomous” operating model that was enacted by the NNSA Act.

How do you envision implementing the recommendations of the Advisory Panel with respect to overseeing the NNSA?

Are there any findings or recommendations that you do not agree with?

If implemented, what would the changes recommended by the panel mean to the relationship between the Department of Energy and the National Nuclear Security Administration?

Should some of the NNSA’s administrative offices be combined with the Department, such as general counsel or public and governmental affairs?

Administrator Klotz: The Department of Energy (DOE) and NNSA thank the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise for its in-depth analysis of the nuclear security enterprise, with particular emphasis on the weapons program. We are pleased that the panel recognized some of the considerable successes that the DOE and NNSA have achieved as we carry out our important and enduring nuclear security and deterrence mission. The final report makes 19 primary recommendations for consideration by the Administration, DOE, NNSA and Congress. We believe that these recommendations fall into three general categories: (1) recommendations that could be implemented within the existing authorities of the Secretary of Energy and the NNSA Administrator and would not require legislative action; (2) recommendations that apply to Congress or are otherwise not in the control of the Department of Energy; and (3) recommendations that would require legislation to implement.

Immediately after being sworn in in May of 2013, the Secretary of Energy provided leadership the guidance and support DOE and NNSA needed to begin to address many of the systemic problems that the panel recognized in its final report. Since that time we have begun to implement many of the panel’s key recommendations, particularly those associated with organizational and

management structures; cost estimation; and program, project and construction management. Many of these actions have already demonstrated tangible results, while others will take more time to implement fully.

The panel's report identifies a number of leadership and cultural challenges confronting the DOE and NNSA, many of which are well known and long-standing, but have proven difficult to resolve. These include identifying the correct incentive structure for the management and operating contractors (M&Os), as well as establishing the right level and focus of oversight to meet legal requirements and the expectations of our many stakeholders, including the American people. Other issues, such as aging infrastructure, have lingered for over 20 years and will require the cooperation and attention of both Congress and the Executive branch to resolve.

We have closely reviewed the 19 primary recommendations, as well as the 65 sub-recommendations, and look forward to working with Congress, the executive branch, and our stakeholders as we work to improve NNSA's capabilities to meet its full national security mission set for years to come. The challenges before us are significant; but working with our federal workforce and our M&O contractors, we commit to address them in a comprehensive, forthright, and open manner. NNSA is also making progress in two foundational areas: issuing and implementing a comprehensive site governance and oversight policy that streamlines and de-conflicts roles and responsibilities; and, evaluating the NNSA M&O contract incentives and evaluation process to simplify and focus on desired outcomes versus burdensome processes.

Some recommendations would go beyond the scope of what the Department and NNSA can do and would clearly require thorough deliberation by other Executive Branch agencies or by the Congress before they could ever be adopted.

NNSA is aware of the 50-plus reviews, studies, and audits of various aspects of the NNSA management and of the nuclear security missions. Many of the studies predate the NNSA, including the January 1999 report of the President's Foreign Intelligence Advisory Board (PFIAB), which recommended creating NNSA as a semi- autonomous agency. In the majority of these studies, having a committed Secretary of Energy is highlighted as an essential ingredient of success. Similarly there have been concerns over the years, including in the PFIAB report, about whether the work of what is now the NNSA would complete successfully among the many priorities of the DOE bureaucracy in the absence of such leadership. While there are many organizational options available to ensure that there is

sufficient priority, focus and attention paid to the national security missions, there is no substitute for strong cabinet ownership.

NNSA has the benefit of DOE senior leadership – Secretary Moniz and Deputy Secretary Elizabeth Sherwood-Randall – with a strong interest in the success of NNSA and the national security mission. Ensuring that this attention remains in the future will take vigilance and commitment from both future Congresses and future Administrations. Even if the Congress were to enact legislative changes in the near term, having committed leadership, including a Secretary who as the panel states “owns the nuclear enterprise missions,” is not guaranteed. As far back as 1985, the Blue Ribbon Task Group on Nuclear Weapons Program Management recommended “that one of the two top positions in DOE should continue to be manned by an individual knowledgeable in the national security matters and included in the National Council Process.”

DOE oversight, provided by an experienced Secretary and Deputy Secretary, serves the needs of the Department and NNSA. The statutes governing the NNSA clearly provide the authority the Administrator needs to execute the missions of the NNSA. However, NNSA recognizes that over time duplicative DOE and NNSA actions have been put in place that have caused delay and frustration amongst the federal work force and out M&O contractors. Secretary Moniz has directed NNSA to work within DOE to eliminate much of the duplication. The right balance is being reestablished because in the end, as the panel recognized, the Secretary is accountable for the nuclear enterprise and the effective execution of its missions.

LABORATORY OVERHEAD COSTS

Subcommittee: Mr. Administrator, in the past Congress has expressed concerns about the high overhead costs of the NNSA's national laboratories. These overhead expenses are charged to each program, project, and activity for infrastructure, general and administrative, laboratory research and development, pensions, and other costs which are then paid out of an indirect cost pool. While this is a valid accounting structure to pay for costs, there is very little insight into what is being paid out of these indirect cost pools since they are entirely managed by the contractor. These rates and the resulting size of these indirect cost pools are approved annually by you, the Administrator, and represent a very large percentage of your budgeted costs.

What insight do you have into what costs are being paid from these contractor-managed indirect cost pools?

The Inspector General has produced numerous reports about hundreds of millions of dollars in potentially unallowable costs that the NNSA has paid to its contractors. In addition, the Government Accountability Office has carried the NNSA on its high-risk list for years with respect to the management of its M&O contracts.

How are you ensuring that only allowable costs are being paid from these indirect cost pools?

Administrator Klotz: NNSA requires M&Os to annually submit detailed final actual indirect cost and rate reports (actual costs incurred), and these submissions are then reviewed and analyzed by NNSA. Additionally, NNSA, the Inspector General Office and the Government Accountability Office review the indirect cost pool on a regular basis. NNSA does note that DOE regulation does allow contractors a means to avoid cost liability for their failure to adhere to cost accounting standards.

NNSA's Integrated Contractors (IC) are required to develop Disclosure Statements in accordance with Cost Accounting Standards to describe their cost charging practices; these standards are codified by public law and help federal agencies more accurately assess actual contract costs. NNSA requires ICs to annually submit detailed final actual indirect cost and rate reports (actual costs incurred), and these submissions are reviewed and analyzed by NNSA. As required by Federal Acquisition Regulation (FAR) contractor costs must be reasonable,

allowable, and allocable. NNSA reviews IC costs for compliance with the FAR, and NNSA includes provisions in its contracts to encourage ICs to take steps to manage costs. IC costs are audited annually by the DOE Office of the Inspector General (OIG), and for FY 2014 the OIG questioned \$4.8 million of costs incurred by NNSA's six ICs, and of that amount \$2.8 million was deemed unallowable and reimbursed back to the government.

ADDITIVE MANUFACTURING

Subcommittee: Dr. Cook, in fiscal year 2015, Congress directed a new program be formed to provide focus and transparency to manufacturing development activities that were in your budget request. These forward-looking investments have the potential to increase efficiency, improve worker safety, and ultimately reduce cost and schedule risks in the production operations of the Nuclear Security Enterprise – operations for which NNSA is spending billions of dollars each year. In the fiscal year 2016 budget request, you are eliminating dedicated funding for Additive Manufacturing.

How much of the budget request invests in development of additive manufacturing capabilities for stockpile production needs?

Stockpile production requires domestic suppliers because of national security and treaty implications. How do you expect to develop a domestic supplier base without coordinated strategic management?

Dr. Cook: In FY 2016, NNSA anticipates spending approximately \$27 million on additive manufacturing (AM)-related activities. For reference, in FY 2015 NNSA is spending slightly more than \$30 million on additive manufacturing activities. The FY 2016 funding will be applied to stockpile production needs (e.g., developing prototypes and tooling) as well as to research and development (R&D) relevant to expanding the scope of applicability of AM to the missions of Defense Programs. This funding is found in the individual programs with responsibilities for the various activities. Since AM is a tool that is broadly applicable to numerous NNSA missions, this funding approach is preferred over a dedicated line for AM because it ensures that those with the identified need have the resources to apply to their specific needs.

NNSA has established a coordinating body for the strategic management of nuclear security enterprise -related AM within Defense Programs, both at NNSA Headquarters and within the NSE sites. These groups ensure AM activities are managed and coordinated to facilitate rapid transmittal of AM-related progress throughout the NSE. Additionally, members of these groups are actively partnering with other government organizations (e.g., the Departments of Defense and Energy, and national laboratories), universities, and industry to ensure NNSA can focus its efforts on AM applications related to NNSA missions. This partnering includes close coordination with the Advanced Manufacturing Office in the Department of Energy. Many of the sites in the NSE are also members of

America Makes and participate in the National Network for Manufacturing Innovation.

ADVANCED COMPUTING

Subcommittee: Dr. Cook, the budget request contains \$623 million, an increase of \$25 million, for NNSA's Advanced Simulation and Computing program. Of that amount, \$14 million is associated with the NNSA's participation in a crosscutting Exascale Computing initiative. Though it is a bit counterintuitive, as these computers become faster, there are reports that the stockpile computational program is actually seeing overall performance go down because the codes you use are not optimized for these different computing architectures.

Are you seeing some unique performance problems associated with the faster computers?

Is the pursuit of a straight "speed" goal in the NNSA's best programmatic interest? If not, what should be the goals of the NNSA's computing program?

Are you pursuing the right computing strategy for the stockpile by coupling this program to the Department's larger Exascale Computing Initiative?

Dr. Cook: The performance problems that are beginning to appear with the NNSA multi-physics Integrated Design Codes (IDCs) have been anticipated as High Performance Computer (HPC) architectures have adapted to overcome the limitations implicit in the end of Dennard scaling and the approaching end of Moore's law scaling. What was not anticipated was how quickly the problem would develop. The performance problem is not inherent in newer computers but, as noted above, in the IDCs which have been "tuned" to run as efficiently as possible on the architectures which have prevailed in the last two decades. The NNSA IDC's each contain approximately a million lines of code, and have been extensively validated and verified. These codes will have to be modified and/or rewritten to take full advantage of the emerging HPC architectures. The IDCs have been developed to their current state over approximately 15 years. We hope to complete the code revisions, or to introduce new IDCs, within approximately five years.

NNSA does not pursue speed for a particular platform as a goal, but rather to reduce time to find a solution for problems of interest. There are a number of national security problems that we know how to solve, but lack sufficient, balanced HPC resources to do so. The machines that top 500 list are increasingly unsuited to NNSA mission requirements. NNSA does and will buy machines that meet its program needs.

The technical problems NNSA must solve to efficiently run national security simulations are the same problems the Department's Exascale Computing Initiative (ECI) must address. Coupling the NNSA effort with the DOE Office of Science ECI effort ensures that NNSA requirements are being addressed and leverages the resources of both organizations. More details on Exascale Computing can be found in Appendix C of the FY 2016 Stockpile Stewardship and Management Plan.

RESEARCH, DEVELOPMENT, TECHNOLOGY AND ENGINEERING

Subcommittee: Dr. Cook, even though the overall budget request for Weapons Activities is up significantly, the funding request for research, development, technology and engineering programs is actually flat compared to last year. Within that, funding for scientific facilities like the National Ignition Facility and OMEGA at the University of Rochester is actually cut. The NNSA's experimental scientific facilities are the backbone of our Science-Based Stockpile Stewardship program.

Which experimental facilities will see a reduction in fiscal year 2016?

Why were the operating budgets of the scientific facilities reduced in this budget request?

What is the impact of these reductions in terms of accomplishments and staffing?

Dr. Cook: The facilities for which Infrastructure and Safety Operations at Facilities operational funds are declining and for which Research, Development, Test, and Evaluation (RDT&E) funds are contributing increasing budgets for maintenance and operations include:

- U1a at the Nevada Nuclear Security Site (NNSS)
- Other mission support facilities at NNSS
- Site 300 at Lawrence Livermore National Laboratory (LLNL)
- Small-scale science laboratories at Los Alamos National Laboratory (LANL), Lawrence Livermore National Laboratory (LLNL), and SNL (these facilities are facing additional issues due to facility aging)
- Los Alamos Neutron Science Center (LANSCE) - Lujan at LANL
- Dual Axis Radiographic Hydrotest (DARHT) facility at LANL
- Technical Area-55 at LANL
- LANL firing sites

NIF, Omega, and Z Facilities will see a reduction in FY 2016. Infrastructure and Safety Operations at Facilities does not provide any operational funding for National Ignition Facility (NIF) and Omega. Instead, operational funding is provided by the Inertial Confinement Fusion (ICF) budget. Reductions in the ICF budget, while much smaller than the reductions in Science, are impacting operations at NIF and Omega. The operational funding for the Z Facility, provided

from the ICF and Science budgets, has been reduced as well. These funding reductions are partially mitigated by recent improvements in operational efficiency at these facilities particularly at the NIF.

The RTBF, Science and ICF budgets were reduced to support other NNSA priorities. Within the available budget, there was a need for an increased investment from the Science budget to offset the maintenance and operations shortfalls.

The reductions in the Infrastructure and Safety Operations at Facilities operational budget require an increased investment from the Science budget to partially restore the operations and maintenance shortfalls. However, the overall reduction in the Science budget compounds the problem, resulting in the following staffing and technical and programmatic impacts:

- Slows the evaluation of replacement Insensitive High Explosive, supporting performance and qualification for the B61-12 and the W80-4
- Slows efforts to understand the effects of the aging of plutonium and other critical materials
- Delays the delivery of plutonium data that contributes to multi-phase equations-of-state (EOS)
- Slows the delivery of all data (nuclear cross sections, materials' strength, radiation flow, and EOS for multiple weapon systems
- Slows the ability to evaluate materials produced by advanced manufacturing methods such as Additive Manufacturing
- Slows the development and evaluation of replacement materials and options for future Life Extension Programs (LEPs)
- Slows improvements to integrated experimental capabilities at U1a, in particular Enhanced Capabilities for Subcritical Experiments (affecting NNSA's ability to support decisions on pit reuse and other LEP options)
- Reduces the ability to provide strategic research and development (R&D) that results in risks to meeting future Defense Program mission needs
- Hinders attracting, retaining, and training next generation scientists and engineers to replace the aging workforce.

The reduction in the ICF budget will:

- Reduce the experimental time at the High Energy Density (HED) facilities (NIF, Z, and Omega)
- Slow research in ignition and weapons-relevant HED physics
- Slow the development of new diagnostics and platforms.

With the recent improvements in operational efficiency at NIF, staff reductions are not expected. Reductions in staff of up to approximately 15 people, and reductions of experimental time of up to several weeks are possible at Z and Omega.

RDT&E provides the capabilities and expertise necessary for Defense Programs to meet NNSA mission responsibilities. RDT&E requires a sustained investment to ensure overall program success. Reductions in RDT&E will result in delays to decisions for future LEPs and will increase both risks and costs associated with Directed Stockpile Work.

LABORATORY DIRECTED RESEARCH AND DEVELOPMENT COSTS

Subcommittee: Mr. Administrator, the LDRD program was originally created by Congress in order to maintain a robust scientific workforce for the nuclear security laboratories but later expanded the program to all DOE laboratories. Still, the NNSA's national security laboratories historically have spent much more on the program, accounting for nearly 70% of total LDRD expenditures.

Is there a difference in approach in how the LDRD program should be implemented at the national security laboratories as compared to the science and energy laboratories?

How do we know these expenditures are of benefit to the national security missions of those labs?

What do you see as the primary goals and benefits of the LDRD program and what level of federal oversight is provided to ensure the program is meeting its goals?

Administrator Klotz: NNSA labs are focused on producing nuclear weapons deliverables and depend on laboratory-directed research and development (LDRD) to conduct high-risk, high-payoff R&D in anticipation of mission needs. The other DOE labs that focus on basic research do not have to depend as much on LDRD, and use less than the Congressional maximum of 6 percent.

Some of LDRD advances the NNSA mission by providing a suite of options to address national security concerns including producing new materials that slow down aging of weapons, reducing global nuclear dangers with new sensors, and protecting service men and women by developing sensors to detect improvised explosive devices and other hazards. In addition, LDRD has developed advanced imaging technology for nuclear weapon pit inspection, making it possible to look inside dense objects without taking them apart. LDRD projects have improved high explosives, developed new manufacturing methods to reduce the cost and complexity of weapons components, and advanced actinide science at the core of the nuclear weapons complex.

The goals are to maintain scientific and technical (S&T) vitality of labs so they can address DOE/NNSA missions, foster creativity, support high-risk, potentially high-value R&D, and prove new concepts.

Federal officials review and concur on all LDRD projects to ensure relevance to the Department's national security missions and compliance with DOE requirements. Federal officials annually assess the health of the program, periodically conduct on-site reviews, and quarterly assess LDRD as part of formal lab performance appraisals. NNSA tracks and reports to Congress the numbers of postdocs, publications, patents, and invention disclosures as metrics showing LDRD accomplishments. The labs also conduct independent program reviews and external advisory boards provide input on individual projects, all of which are observed by Federal program managers.

HIGH RISK EXCESS FACILITIES (Y-12)

Subcommittee: Mr. Administrator, the NNSA provided a report in September 2014 (as directed by this Subcommittee) on its facilities disposition plans. In that report, you identified the NNSA's top-10 high risk facilities with the highest risks to be three large Manhattan Project buildings at the Y-12 plant. The DOE Inspector General recent assessment included these buildings as among the Department's "Worst of the Worst." Both reports identified the risk of roof collapse and further water intrusion for these facilities.

What are you doing to maintain these facilities until they can be turned over to and remediated by the Office of Environmental Management?

When do you plan to turn these facilities over to the Office of Environmental Management?

Administrator Klotz: The Department recently has committed to establish a working group on excess contaminated facilities. This working group will develop an analysis and report providing critical information on contaminated Departmental excess facilities that would be useful for decisions regarding the path forward for addressing these facilities. The working group will complete its report in time to inform the Secretary's decisions on the FY 2017 Budget.

EXCESS FACILITIES AND REDUCING THE FOOTPRINT

Subcommittee: Mr. Administrator, although the previous Administrator established footprint reduction goals for the Nuclear Security Enterprise, several of the NNSA's construction projects will actually add a significant amount of square footage compared to the facilities those projects were design to replace. Disposing of these excess facilities lowers the overall operating costs of the Complex and reduces risks. The NNSA provided a report in September 2014 (as directed by the Subcommittee) on this matter indicating that by 2019, NNSA will have more than 600 excess facilities that are not required for current or future mission work.

Have you made it your goal to reduce the overall NNSA footprint?

How much funding is in this budget request for D&D activities and can you describe what you plan to accomplish in the five-year plan?

Administrator Klotz: NNSA is committed to reducing its footprint through an approach that balances the risk of our high risk excess facilities and meeting our primary mission commitments. As stated in our annual disposition report, NNSA gives higher priority to reducing the risk posed by our high risk excess contaminated facilities than to reducing the footprint solely for the purpose of creating open areas. In 2014, 2015, and 2016 NNSA provided/will provide direct funding of \$5 million per year to demolish excess facilities; within 2017 and later years this funding will double to \$10 million. NNSA sites, most notably the Los Alamos National Laboratory, are using indirect funding to demolish additional excess facilities. The anticipated footprint reduction at these spending levels is reported in our most recent annual report entitled, Fiscal Year 2014 National Nuclear Security Administration Facilities Disposition Report. Further, the FY 2016 budget request includes \$28 million for prep work to disposition the old Kansas City Plant at Bannister Road. Over the five-year Future Years Nuclear Security Program, planned key disposition accomplishments are \$200 million in FY 2017 for transfer of the Kansas City Bannister Road Complex to a private entity; double NNSA annual funds to disposition facilities to \$10 million/year, and; work with the Department's new working group on excess contaminated facilities to develop an analysis and report providing critical information on contaminated Departmental excess facilities that would be useful for decisions regarding the path forward for addressing these facilities. The working group will complete its report in time to inform the Secretary's decisions on the FY 2017 Budget.

URANIUM PROCESSING FACILITY PROJECT PLANS

Subcommittee: Mr. Administrator, NNSA has provided us with a project execution strategy for the Uranium Processing facility that shows site preparation starting at the end of this fiscal year and major facility construction at the beginning of FY 2017.

What is the status of the revised UPF design, in terms of percent design complete, and at what percent design complete do you envision commencing major construction activities?

Have you identified the risks you introduce by planning to construct support facilities years before the Main Process Building (MPB) would be operational? What would be the impact of those risks if there were delays in delivering the MPB?

What are you doing to ensure this plan is different than what NNSA has done with the Waste Solidification Building - a \$414 million support facility for the MOX plant that is sitting in extended layup, having been completed years before the MOX plant will ever be operational?

Administrator Klotz: UPF was able to preserve much of the previously completed process equipment design, and has completed conceptual design on the new facilities layout in June 2015. In addition, the licensing/safety analysis and technology developments efforts are significantly more mature than a project completing conceptual design. Considering these factors, the UPF design is approximately 45% complete. Upon completion and approval of the final design baseline, a more definitive design status will be available. In accordance with NNSA's policy, we will not begin construction of the nuclear facility subprojects until 90% design completion has been reached, and we have an approved cost and schedule baseline at Critical Decision 2 (CD-2). We are on track to achieve 90% design completion in late FY 2017.

The benefits of starting construction of simple, commercial, non-nuclear work reduces the overall schedule risk, reduces overall work site congestion, and reduces the coordination interfaces of several projects working at once to complete the Uranium Processing Facility project by 2025.

It is important to have the concrete batch plant completed and certified in time to start the placement of selected fill lean concrete as part of the site preparation

work, followed by the subsequent foundation work. The construction support facilities will provide office space for project and construction management staff, and facilities for the construction craft. Upon completion of construction, the facilities will be made available as an administrative facility to support the operation of UPF. This strategy is less expensive than providing temporary construction trailers for the duration of the construction period and subsequently constructing the office facility. The added risk to starting the construction support facilities in advance of design completion for the Main Process Building (MPB) have been mitigated by ensuring the construction support facilities would not change based upon any changes to the MPB.

There are some notable differences between MOX/WSB and UPF in terms of their structure and management approach. First, MOX and WSB are two separate and distinct projects, as opposed to one project with integrated subprojects in an overall program such as UPF. Second, MOX and WSB were designed and managed by two separate contractors that did not have an incentive to coordinate schedule and risks of the individual projects. Last, the current UPF contract is structured with significant incentives and penalties with all fee being provisional and subject to recovery by the government if the entire project is not completed on budget and schedule.

REDUCTIONS IN SECURITY FUNDING - OPERATIONS

Subcommittee: Mr. Administrator, the budget request proposes \$620 million, a reduction of \$16 million, for physical security operations and maintenance. This is the sixth year of reductions for these activities, which are now \$100 million below the fiscal year 2010 level.

How many more savings can you reasonably find in security operations without seriously impacting the effectiveness of security forces?

Will there be any reduction in protective forces at the level of the budget request?

Administrator Klotz: A concerted effort has been undertaken to implement a risk-based security program that applies the preponderance of available resources to the most critical assets and accepts risk in lower priority areas.

We will continue to use strategic resourcing to reduce procurement costs, improve project management, leverage emerging technologies to minimize risks to the extent possible and to deviate from or delay implementation of policy requirements where appropriate.

We do not foresee any protective force reductions at this time.

MAINTAINING PHYSICAL SECURITY SYSTEMS

Subcommittee: Mr. Administrator, funding in your five-year plan for the security infrastructure is essentially flat. Following the Y-12 security incursion, it became clear that security systems were not being acceptably maintained. Many of the sites are also struggling with obsolete security systems.

How do you intend to maintain aging physical security systems with a flat funding plan?

What is the rationale for continuing to defer the physical security infrastructure investments that must be made?

With large increases needed to modernize the production infrastructure, what priority should be placed on investments in the security infrastructure?

Isn't it a positive development that Russia has decided to fund its own physical protection needs for its nuclear materials? What are your concerns with Russia's position in this matter?

If the highest priority physical security systems have been upgraded, what is the need for continued U.S. funding?

Administrator Klotz: We maintain a prioritized list of deferred security systems-related projects and major procurements. This list is based in part on a comprehensive new baseline of deployed physical security systems assets that we developed last year. To gain efficiencies, we have taken steps to reestablish the Argus depot for centralized procurement and testing of Argus security system equipment. This will allow us to leverage quantity purchases and more closely monitor and control the amount of equipment purchased for maintenance and replacement purposes. The recapitalization and maintenance programs provide resources to arrest the declining infrastructure, mitigate risk, and reduce deferred maintenance.

Over the course of the last two years we established and now maintain a physical security systems supplemental document that details, by location, what equipment is deployed, how old it is, the condition, false and nuisance alarm statistics, maintenance activities, etc., so we can better manage and project needs. We are also working closely with the security staffs at Y-12 and Pantex to understand how their physical layout changes might affect security system requirements. For

example, the proposed Material Staging Facility project at Pantex may eliminate the need for significant investment to correct Zone 4 security infrastructure problems.

Given the potential consequences of security incidents on production -- as we witnessed after the July 2012 protestor incursion at Y-12 -- we strongly believe that investments in security infrastructure should be given a very high priority.

It is a positive development that Russia is asserting responsibility for its own nuclear security costs. This is in keeping with the planned transition, underway for several years, of U.S.-Russia cooperation toward a more equal partnership rather than the donor-recipient model of the past. Careful negotiation and implementation of the MNEPR Agreement was intended to foster continued security engagement through such a partnership.

DOE/NNSA remains concerned about Russia's observed focus on physical security upgrades and protection against outsider threats, rather than on a holistic nuclear security approach that includes material control and accounting, training and a robust regulatory regime. We have seen real progress in this regard since the beginnings of our collaboration with them, but effective nuclear security is not a fixed state; it requires continuous evaluation and improvement. We believe that continued nuclear security collaboration with Russia is imperative to promote security improvements across its vast nuclear complex and squarely in the national interest.

WEDNESDAY, MARCH 25, 2015.

**NATIONAL NUCLEAR SECURITY ADMINISTRATION,
NUCLEAR NONPROLIFERATION AND NAVAL REACTORS**

WITNESSES

FRANK KLOTZ, ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

ANNE HARRINGTON, DEPUTY ADMINISTRATOR FOR DEFENSE NUCLEAR NONPROLIFERATION, NATIONAL NUCLEAR SECURITY ADMINISTRATION

ADMIRAL JOHN M. RICHARDSON, DIRECTOR, NAVAL REACTORS

Mr. SIMPSON. Like to call the hearing to order.

Earlier this month we examined the nuclear weapons stockpile budget for the National Nuclear Security Administration. This morning we will continue our consideration of the budget request for the NNSA with a focus on the Department's two other important national security programs, Nuclear Nonproliferation and Naval Reactors.

I would like to welcome back Administrator Klotz to testify on the budget request for the NNSA. I would also like to welcome back Admiral Richardson and Ms. Harrington. We have had many discussions about your programs in recent weeks, and I look forward to your testimony today.

The President's budget request for the nonproliferation programs is \$1.94 billion, \$324 million above last year's level. That amount includes \$234 million for nuclear counterterrorism and emergency response programs that were previously funded within Weapons Activities. This proposed realignment is one of many changes in the budget request, and we hope to hear more from you today on how the strategies for nonproliferation are evolving and will be effective in meeting today's threats.

The President's Budget Request for Naval Reactors also proposes a substantial increase. Compared to fiscal year 2015, the request is \$1.38 billion, or \$141.5 million higher.

Admiral, your programs are critical in providing our naval forces with the next-generation propulsion systems that maintain our Navy's edge. I would like to discuss how these efforts are proceeding and to understand what activities in your budget request are essential to ensuring a safe and reliable nuclear fleet.

Please ensure that the hearing record, responses to the questions for the record, and any supporting information requested by the subcommittee will be delivered in final form to us no later than 4 weeks from the time you receive them.

I also ask members to submit any additional questions for the record to the subcommittee by close of business tomorrow.

With those comments, I would like to yield to my ranking member, Ms. Kaptur, for any opening comments she might have.

Ms. KAPTUR. Thank you, Mr. Chairman.

And welcome, Administrator Klotz, Ms. Harrington, and Admiral Richardson. Glad to have you back today, and we are very interested in your testimony.

The threat of nuclear terrorism is one of the gravest national security threats and global threats that we face, and our Nation must make real progress toward securing stocks of fissile material. As Mr. Putin continues his aggressive push to destabilize Ukraine and threaten the broader region, a redoubled nonproliferation effort seems a very wise investment.

Since 2004, NNSA's nuclear nonproliferation programs have facilitated the removal of all weapons grade highly enriched uranium from 17 countries, about 165 bombs' worth of nuclear material. The Global Threat Reduction Initiative in particular has removed 234 kilograms of weapons grade uranium, enough for nine nuclear weapons, from Ukrainian soil, eliminating the risk of this material falling into the wrong hands.

Unfortunately, this nonproliferation budget provides an insufficient increase to prevent the spread of nuclear weapons and materials, with much of the proposed increase going to fund programs previously funded in weapons.

Admiral, the Naval Reactors program is critical to the performance and continuation of what is the safest and most secure leg of our Nation's nuclear triad. Naval Reactors has often been looked to for expert opinion and for management support to other government programs. Last year's cheating scandal obviously brought questions about the culture in the ranks, and hopefully you can report today on the progress you are seeing in restoring the nuclear Navy's tradition of safety, while ensuring our Nation's security over the long term.

Thank you all for your continued great service to our country, and we look forward to your insights regarding recent changes in program schedules and costs, as well as more details on how this program has changed since last year.

Thank you, Mr. Chairman, for the time.

Mr. SIMPSON. Administrator Klotz.

General KLOTZ. Thank you, Chairman Simpson, Ranking Member Kaptur. Thank you for inviting us back to present the President's fiscal year 2016 budget request for the Department of Energy's National Nuclear Security Administration and for our Defense Nuclear Nonproliferation and Naval Nuclear Propulsion programs in particular.

As you pointed out, earlier this month we had an opportunity to discuss our Weapons Activity account, so we are glad to have the opportunity to focus on NNSA's other extraordinarily important missions to prevent, counter, and respond to the threat of nuclear proliferation and terrorism, and to support the capability of our nuclear-powered Navy to power and protect American and Allied interests around the world.

I am pleased to be joined, as you pointed out, by Ms. Anne Harrington and Admiral Richardson, who will each highlight the details of their respective budget requests.

I would also like to acknowledge Dr. Steve Aoki, who is our Associate Administrator and Deputy Under Secretary of Energy For Counterterrorism and Counterproliferation, who is also here today.

We have provided the subcommittee with a written statement, and respectfully request that it would be submitted for the record. And I look forward to answering any questions you may have. But first let me turn to Ms. Harrington.

Mr. SIMPSON. Appreciate that. Your full statements will be included in the record.

[The information follows:]

**Statement of Lt. Gen. Frank G. Klotz, USAF (Ret)
Administrator
National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2016 President's Budget Request
Before the
Subcommittee on Energy & Water Development
House Committee on Appropriations**

March 25, 2015

Chairman Simpson, Ranking Member Kaptur, and Members of the Subcommittee, thank you for the opportunity to present the President's Fiscal Year (FY) 2016 Budget Request for the Department of Energy's (DOE) National Nuclear Security Administration (NNSA). We value this Committee's leadership in national security, as well as its strong and abiding support for the mission and people of the NNSA.

The President's FY 2016 Budget Request for NNSA, which comprises more than 40% of the DOE's budget, is \$12.6 billion, up \$1.2 billion or 10.2% over the FY 2015 enacted level. The NNSA has a unique and special responsibility for maintaining a safe, secure, and effective nuclear weapons stockpile for as long as nuclear weapons exist; preventing, countering and responding to evolving and emerging threats of nuclear proliferation and terrorism; and, supporting the capability of our nuclear-powered Navy to project power and protect American and Allied interests around the world. By supporting growth in each of our four appropriations accounts, this budget request represents a strong endorsement of NNSA's vital and enduring mission, and is indicative of the Administration's unwavering commitment to a strong national defense.

The NNSA's mission is accomplished through the hard work and innovative spirit of a highly talented workforce committed to public service. To provide them the tools they need to carry out their complex and challenging task, both now and in the future, we must continue to modernize our scientific, technical and engineering capabilities and infrastructure. In doing so, we are mindful of our obligation to continually improve our business practices and to be responsible stewards of the resources that Congress and the American people have entrusted to us. The NNSA took several significant steps toward this objective during the past year.

NNSA's FY 2016 Budget Request reflects the close working partnership between NNSA and the Department of Defense (DoD) in providing for our Nation's nuclear deterrence capabilities and modernizing the nuclear security enterprise. As in last year's Budget, DoD is carrying a separate account in its FY 2016 Budget Request for the out years, FY 2017 and beyond, which identifies funds for NNSA's Weapons Activities and Naval Reactors. We urge this Subcommittee's support for alignment of its appropriations process and national defense or "050" allocations, including

the subcommittee 302(b) allocations, with the President's Budget. The requested allocation supports NNSA and DoD priorities.

Tough decisions and trades in FY 2016 have been made to meet military commitments and nuclear security priorities. If the request is not fully supported, modernization of our nuclear enterprise and implementation of our long-term stockpile sustainment strategy could be put at risk. The program we have proposed is highly integrated and interdependent across the stockpile management, science and infrastructure accounts.

Apart from the need for national defense allocation alignment, the looming possibility of sequestration is a major threat to all NNSA missions. The NNSA FY 2016 Budget Request exceeds the caps set on national security spending in the Budget Control Act (BCA); but is necessary to meet our national security commitments. Reduced funding levels will place these commitments at risk. We have made some tough resource decisions across the NNSA, but the Secretary of Energy and I believe that our enduring missions are too vital to the Nation's security to be further constrained by the current BCA spending caps.

Details of the FY 2016 President's Budget Request for the NNSA follow:

Weapons Activities Appropriation

The FY 2016 Budget Request for the Weapons Activities account is \$8.8 billion, an increase of \$666.6 million or 8.1% over FY 2015 enacted levels. It is comprised not only of the Defense Programs portfolio, which is responsible for all aspects of stockpile stewardship and management; but also the enterprise-wide infrastructure sustainment activities managed by our Office of Safety, Infrastructure and Operations, as well as our physical and cybersecurity activities. It should be noted that in this budget request we have moved NNSA's on-going emergency response and counterterrorism and counterproliferation capabilities out of the Weapons Activities account and into the Defense Nuclear Nonproliferation account. This action aligns activities for preventing, countering and responding to global nuclear threats into a single account.

Maintaining the Stockpile

Last year, we again successfully used science-based stockpile stewardship to certify to the President that the American nuclear weapons stockpile remains safe, secure, and effective--without the need for underground nuclear testing. It is important to periodically remind ourselves that we have been able to do this every year largely due to the investments we have made and continue to make in state-of-the-art diagnostic tools, high performance computing platforms, and modern facilities staffed by extraordinarily talented scientists, engineers and technicians.

For Directed Stockpile Work (DSW), the FY 2016 request is \$3.2 billion, a \$494.7 million increase over FY 2015 enacted levels, or about 18.4%. Approximately \$133 million of this increase

reflects a restructuring of the accounts when compared to the FY 2015 budget request. These changes are discussed below.

With respect to the major life extension programs (LEP), we have now passed the halfway mark in the production phase of the W76-1 LEP. This LEP, which directly supports the Navy, is now on track and on budget. Our FY 2016 Request of \$244.0 million will keep us on track to complete production in FY 2019.

We are also making significant progress in the engineering development phase of the B61-12 LEP. The B61 is a gravity bomb associated with Air Force long-range nuclear-capable bombers, as well as dual-capable fighter aircraft. Working with the Air Force, we successfully completed environmental flight tests on the F-15, F-16, and B-2 aircraft on or ahead of schedule. The B61-12 LEP will enter Phase 6.4 Production Engineering in 2016; and, with the \$643.3 million requested, we will remain on track to deliver the First Production Unit (FPU) in FY 2020.

Based on results from the ongoing surveillance of the nuclear weapons stockpile performed by NNSA's laboratories and plants, the Nuclear Weapons Council decided that it was prudent to expand the planned W88 Alteration (ALT) 370 to now include replacement of the conventional high explosive in the warhead. The budget request reflects this decision and includes \$220.2 million to support the FPU in FY 2020.

The budget request also includes \$195.0 million to support the Nuclear Weapons Council decision to accelerate by two years an LEP of the W80 to serve as the warhead for the Air Force's Long Range Stand-Off system (LRSO). FPU is now slated for 2025.

This budget request also supports our goal of dismantling all weapons retired prior to FY 2009 by FY 2022. In fact, we have already dismantled more than 42% of these weapons in 38% of the time allotted. This funding will ensure that we stay on track to meet our dismantlement commitment.

Within DSW, the budget request also includes \$415.0 million for a new "Nuclear Materials Commodities" subprogram to support the investment needed in nuclear materials to maintain the viability of the enduring stockpile. Included in this subprogram are Uranium Sustainment, Plutonium Sustainment, and Tritium Sustainment which are all crucial to sustain our stockpile, even as we move to lower levels in our nuclear stockpile. Since last year, we have created and empowered new program manager positions to oversee each of these nuclear materials programs. Also included within DSW, is a subprogram for Domestic Uranium Enrichment. Ensuring we have a domestic uranium enrichment capability for national security needs is particularly important in maintaining a domestic source of LEU to produce tritium and for research reactor conversion program and eventually to produce HEU for Naval Reactors fuel.

Consistent with the Consolidated and Further Continuing Appropriations Act for Fiscal Year 2015, activities formerly carried out under Campaigns are now included under Research, Development, Test, and Evaluation (RDT&E). The funding request for RDT&E is about

\$1.8 billion, essentially the same as the FY 2015 enacted level. This includes \$623.0 million for the Advanced Simulation and Computing (ASC) Program, an increase of \$25.0 million for the Advanced Technology Development and Mitigation (ATDM) subprogram that supports high performance computing; \$130.1 million for Advanced Manufacturing Development, an increase of \$22.9 million. This funding will support work related to electronics-based arming, fusing, and firing, as well as other technologies that require significant technical effort to ensure production readiness for manufacturing technologies needed to replace sunset technologies. We continue to develop and mature additive manufacturing technologies that can provide significant cost avoidance by reducing costs to prototype and manufacture tooling and certain weapons components. These increases are largely offset by relatively small decreases in the Science (-\$22.5 million for a total request of \$389.6 million), Inertial Confinement Fusion Ignition and High Yield Program (-\$10.4 million for a total request of \$502.5 million), and Engineering (-\$4.6 million for a total request of \$131.4 million) Programs.

The Inertial Confinement Fusion Ignition and High Yield program has spearheaded ongoing improvements in both management and operational efficiencies at NNSA's major high energy density (HED) facilities, including the National Ignition Facility (NIF) at Lawrence Livermore National Laboratory (LLNL). As a result of these improvements, LLNL has been able to increase the shot rate at NIF. NNSA recently completed a 10-year HED Science Strategic Plan to guide work in this important field.

Partnering with the DOE Office of Science, NNSA continues to make much needed investments in exascale computing. NNSA's ASC Program provides leading edge, high-end modeling and simulation capabilities to sustain and modernize the stockpile today and into the future. The FY 2016 Request includes \$64 million for the ASC's Advanced Technology Development and Mitigation subprogram to pursue long-term simulation and computing goals relevant to the exascale computing needed to support the broad national security missions of the NNSA. Both the NNSA and DOE's Office of Science continue to collaborate with the Office of Science providing \$209 million towards the development of capable exascale systems.

Defense Programs also supports the vitality of the broader National Security Enterprise. An important aspect of this is investing in Laboratory-, Site- and Plant-Directed Research and Development (LDRD). Independent reviews have consistently affirmed the importance of the program to the long-term vitality of the labs. LDRD provides basic research funding to foster innovation and to attract and retain young scientific and technical talent. Congressional support is essential to sustaining this essential national capability.

Finally, another important accomplishment within Weapons Activities in 2014 was the renewal of the Mutual Defense Agreement with the United Kingdom. Since 1958, this enduring agreement has enabled mutually beneficial exchange of nuclear expertise between the United States and UK, contributing to a long and proud history of defense cooperation between our two nations. In this case, the Administration and the Congress worked closely together to achieve a shared goal. We are truly grateful for your support.

Improving Safety, Operations and Infrastructure

In order to support all of these critical programmatic activities, we are making important strides in recapitalizing our aging infrastructure throughout the enterprise. In August 2014, DOE and NNSA formally dedicated the new National Security Campus (NSC) in Kansas City, Missouri. The former Kansas City Plant was relocated from the Bannister Federal Complex, a 70-year-old facility, to the NSC with half the footprint and a modern operating environment. The move was safely and securely completed one month ahead of schedule and \$10 million under budget. The NSC manufactures or purchases 85% of the non-nuclear components that make up our nuclear weapons, and thus plays a major role in keeping the Nation's nuclear stockpile safe, secure and effective.

The FY 2016 request restructures many of the activities formerly conducted under the Readiness in Technical Base and Facilities (RTBF) into the Infrastructure and Safety program. This new program will maintain, operate and modernize the NNSA general purpose infrastructure in a safe, secure, and cost-effective manner. Infrastructure and Safety efforts are organized around five elements – Operations of Facilities; Safety Operations; Maintenance; Recapitalization; and, Line Item Construction. Together, these elements provide a comprehensive approach to arresting the declining state of NNSA infrastructure. The FY 2016 request for Infrastructure and Safety is \$1.5 billion and reflects an increase of \$79.4 million for comparable activities from the FY 2015 enacted level. This funding will allow NNSA to modernize and upgrade aging infrastructure and address safety and programmatic risks.

We are developing a 10-year strategic plan that identifies the activities NNSA is undertaking to arrest the declining state of NNSA infrastructure, reduce Deferred Maintenance (DM), and dispose of excess facilities. The major elements of the plan include improving infrastructure decision-making with implementation of new, risk-informed analytical methods to better evaluate the ability of an asset to support program core capabilities; improving program management tools through implementation of standardized and automated processes and systems for scope, cost, and schedule management; accelerating recapitalization and construction efforts to revitalize infrastructure and make better use of the resources by strategically procuring common systems and components used across the enterprise; and shrinking the NNSA footprint by deactivating and disposing of excess facilities, with increased focus on timely deactivation and on repurposing and reuse as a strategy to avoid new construction. Within this 10-year plan, the transferring of the old Kansas City Bannister Road facility to a private developer to repurpose the site for local community use will eliminate \$250 million in DM. We recognize that these goals will not be met quickly, and that arresting the declining state of NNSA infrastructure will require steady commitment at all levels of the organization over many years. We believe that the tools and processes we are developing and implementing, along with sustained investment in our infrastructure, will set NNSA on the right path to ensuring a viable, safe, and effective nuclear security enterprise well into the future.

The Infrastructure and Safety program addresses the needs of program specific infrastructure, primarily the Uranium Processing Facility (UPF) and the Chemistry and Metallurgy Research

Replacement (CMRR) project. RTBF provides a defined level of readiness and capability through infrastructure investments and strategy development that are dedicated to special nuclear material processing and inventory management. The RTBF program accomplishes this mission by modernizing stockpile stewardship and management infrastructure through capability investments, strategic development, and line-item construction projects for the sustainment or enhancement of capabilities. The FY 2016 request is \$1.1 billion, with a reduction of \$1.4 billion, due to the transfer of select activities to Infrastructure and Safety. For comparability purposes, the FY 2016 request for RTBF is increased more than 50% to support a new source of high-purity depleted uranium, to realign recapitalization of Defense Programs capabilities through the Capabilities Based Investments (CBI), and to increase funding for the UPF at Y-12 to \$430.0 million and the CMRR Project at the Los Alamos National Laboratory (LANL) to \$156.0 million.

Last year, NNSA successfully executed one of the largest and most complex contract transitions in the history of the Department with the award of a contract to Consolidated Nuclear Security to operate and manage both the Pantex Plant and the Y-12 National Security Complex. The consolidated contract was written to require efficiencies and improved operations as a requirement for continued performance beyond the initial five-year base period. This is a departure from other management and operating contracts where efficiencies and effectiveness are considered but are not mandatory.

Our Office of Secure Transportation (OST) provides safe, secure movement of nuclear weapons, special nuclear material, and weapon components to meet projected DOE, DoD, and other customer requirements. It continues to modernize assets by extending the life of the Safeguards Transporter and is currently looking at options for the next generation transporter, the Mobile Guardian Transporter. To meet an increasing workload, OST is planning a small increase in the number of federal agents.

The primary mission of NNSA's Office of Defense Nuclear Security (DNS) and the Chief Security Officer is to develop and implement sound security programs to protect Special Nuclear Material (SNM), people, information, and facilities throughout the nuclear security enterprise. The NNSA's [Defense Nuclear Security FY 2016](#) request is \$632.9 million. The request manages risk among important competing needs even as NNSA continues to face the challenges associated with an aging physical security infrastructure that must be effectively addressed in the coming years. The request includes \$13 million to initiate installation of Argus at the Device Assembly Facility at the Nevada National Security Site. Argus is the enterprise security system for Category 1 SNM facilities that integrates access control, intrusion detection, and video assessment of alarms to protect and control high-consequence assets. DNS also has a prioritized list of smaller infrastructure upgrade projects it will execute as General Plant Projects within available O&M funding, for example, lighting systems supporting perimeter camera assessment, replacement and upgrades to Argus Field Processors, replacement of ported coax cables and buried cable electronics that will extend lifecycles and delay total system replacements. DNS initiated an Enterprise Vulnerability Assessment process across the

enterprise with a focus on standardizing how vulnerability assessments are conducted and site protection strategies are formulated.

The Information Technology and Cybersecurity FY2016 request is \$157.6 million, a decrease of \$22.1 million or about 12.3% from FY 2015 enacted levels. The difference is attributed to a one-time investment in FY 2015 in the Infrastructure Program to implement a more secure classified computing environment. All activities related to the one-time increase were completed. Information Technology and Cybersecurity supports the nuclear security enterprise. This work includes continuous monitoring and enterprise wireless and security technologies (i.e., identity, credential, and access management) to help meet security challenges. In FY 2016, NNSA plans to complete the recapitalization of the Enterprise Secure Network, modernize the Cybersecurity infrastructure, implement the Identity Control and Access Management project at NNSA Headquarters and site elements, and implement and coordinate all Committee on National Security Systems and Public Key Infrastructure capabilities. In addition, we will leverage the NNSA Network Vision framework to increase the efficiency and cost-effectiveness of NNSA Information Technology (IT) services.

Defense Nuclear Nonproliferation Appropriation

In FY 2016, we have realigned the NNSA programs that continue to support the President's Prague Agenda to address the threat of nuclear proliferation and terrorism into the Defense Nuclear Nonproliferation (DNN) appropriation. NNSA's activities work across the spectrum to prevent, counter and respond to the threat of nuclear and radiological proliferation and terrorism. We work to prevent the acquisition of nuclear or radiological materials, technology, and expertise; we actively counter efforts to develop the materials and scientific knowledge needed to construct a nuclear threat device; and we are poised to respond to terrorist acts by searching for and rendering safe any such devices.

The Defense Nuclear Nonproliferation (DNN) account request is \$1.9 billion, an increase of \$325 million or about 20.1% from FY 2015 enacted levels. At first glance, this figure looks like a very big increase but the number actually reflects a reorganization of our budget to include the Nuclear Counterterrorism Incident Response (NCTIR) and the Counterterrorism and Counterproliferation (CTCP) Programs from the Weapons Activities account. For comparability purposes, the DNN account increase is \$101.0 million or over 5% above FY 2015 enacted levels. Additionally, we have combined the NCTIR and CTCP programs into a single budget program line to eliminate confusion about NNSA nuclear counterterrorism programs and activities. We also changed the NCTIR name to Nuclear Counterterrorism *and* Incident Response Program, reflecting this realignment. The DNN Appropriation will now support two enduring mission areas: 1) The Defense Nuclear Nonproliferation Program and 2) The Nuclear Counterterrorism and Incident Response Program. The Nuclear Nonproliferation Program is also restructuring to place more emphasis on capabilities as opposed to specific programs. This organizational restructuring is reflected in the DNN budget restructuring.

To achieve all of these mission objectives, NNSA has restructured the budget request under the Defense Nuclear Nonproliferation account as follows:

- Material Management and Minimization
- Global Material Security
- Nonproliferation and Arms Control
- Defense Nuclear Nonproliferation R&D
- Nonproliferation Construction
- Nuclear Counterterrorism *and* Incident Response Program.

Together, this restructuring aligns funding for preventing, countering, and responding to global nuclear dangers in one appropriation.

Nonproliferation Efforts

The FY 2016 request for the DNN Program, excluding NCTIR and Legacy Contractor Pensions, is \$1.6 billion, an increase of \$67.9 million or about 4.4% above FY 2015 enacted levels. This past year was a big year for our nonproliferation efforts. Our Defense Nuclear Nonproliferation organization was responsible for many of the significant deliverables at the third Nuclear Security Summit held in The Hague last spring. Of particular note, Japan announced at the Summit that it would work with us to remove and dispose of all highly-enriched uranium (HEU) and separated plutonium from its Fast Critical Assembly. NNSA is currently working with its counterparts in Japan to resolve technical and logistical issues to complete this effort in a timely manner.

Also during the Summit, the United States joined 22 countries in signing up to a “Gift Basket” to secure all Category 1 radioactive sealed sources by 2016. In the United States, there are approximately 465 buildings with Category 1 devices. Of these, NNSA has completed security enhancements at 300 and is currently involved in a targeted outreach campaign to engage the remaining 165 buildings by the end of spring 2015.

And finally, NNSA partnered with five countries to remove 190 kg of HEU and plutonium from civilian facilities; which brings our cumulative total at the end of FY2014 to an impressive 5,207 kg; this is more than enough material for 200 nuclear weapons. While relations with Russia are severely strained, we anticipate that we will continue to cooperate in efforts to repatriate Russian-origin weapons-usable HEU material to Russia.

The Material Management and Minimization (M³) program presents an integrated approach to addressing the persistent threat posed by nuclear materials through a full cycle of materials management and minimization efforts. Consistent with the priorities articulated in the National Security Strategy of the United States and the Nuclear Posture Review, the primary objective of the program is to achieve permanent threat reduction by minimizing and, when possible, eliminating weapons-usable nuclear material around the world. This program includes elements of the former Global Threat Reduction Initiative (GTRI) and Fissile Materials Disposition Programs. The FY 2016 request for this program is \$311.6 million. For comparability

purposes, the request reflects an increase of \$38.7 million or about a 14.2% increase above the FY 2015 enacted levels. The funding increases are primarily for the removal of HEU from miniature neutron source reactors in Africa as well as preparatory activities for future shipments from Europe and Japan, which will proceed with appropriate cost-sharing.

The Global Material Security (GMS) program supports the President's nuclear and radiological security agenda and the Secretary's goal of enhancing nuclear security through nonproliferation. We work with partner countries to increase the security of vulnerable stockpiles of nuclear weapons, weapons-usable nuclear materials, and radiological materials, and to improve partner countries' abilities to deter, detect, and interdict illicit trafficking. Elements of the former GTRI program, International Material Protection and Cooperation (IMPC) program, and Nonproliferation and International Security (NIS) program are being combined in GMS, in order to better integrate capabilities required to support DNN's enduring mission. The FY 2016 request for this program is \$426.8 million. For comparability purposes the request reflects a slight increase of \$2.5 million above the FY 2015 enacted levels. This increase will accelerate the protection of International Atomic Energy Agency Category 1 radiological sources in order to meet the 2014 Nuclear Security Summit commitment to secure these sources by 2016.

The Nonproliferation and Arms Control (NPAC) program supports the President's nonproliferation agenda and NNSA efforts to prevent the proliferation or use of weapons of mass destruction by state and non-state actors. To carry out the goals of this program, we work with the International Atomic Energy Agency (IAEA) and foreign partners to build global capacity to safeguard nuclear materials and prevent illicit transfers of dual-use materials, equipment, technology and expertise. We also work with our partners and the IAEA to develop technologies and approaches to verify and monitor current and future arms control treaties and agreements. This funding also supports statutorily mandated activities such as technical reviews of export licenses and interdiction cases, and technical support for the negotiation and implementation of civil nuclear cooperation agreements (123 Agreements), as well as international export control outreach activities, and activities to support and improve the execution of the NPAC 10 CFR Part 810 application process. The FY 2016 request for this program is \$126.7 million, and reflects a slight increase of \$0.8 million above the FY 2015 enacted level.

The Defense Nuclear Nonproliferation Research and Development (DNN R&D) program supports innovative, unilateral and multi-lateral technical capabilities to detect, identify, and characterize: 1) foreign nuclear weapons programs, 2) illicit diversion of special nuclear materials, and 3) nuclear detonations. To meet national and Departmental nuclear security requirements, DNN R&D leverages the unique facilities and scientific skills of the Department of Energy, academia, and industry to perform research, including counterterrorism-related R&D. DNN R&D conducts technology demonstrations, and develops prototypes for integration into operational systems. The FY 2016 request for this program is \$419.3 million, a \$25.9 million increase or about 6.6% above FY 2015 levels. Increased funding is requested for nuclear and energetic materials characterization experiments and development of advanced diagnostic

equipment capabilities, for long-range nuclear detonation detection, and technical forensics research. This increase over FY 2015 levels is partially offset by a return to baseline funding for the Proliferation Detection subprogram after a one-time Congressional increase in FY 2015 for test bed development and field experiments.

Nonproliferation Construction consolidates construction costs for DNN projects previously contained within each program budget. Currently, the MOX Fuel Fabrication Facility (MFFF) is the only project in this program. The FY 2016 request for MFFF is \$345 million which is the same as the FY 2015 enacted level. The National Defense Authorization Act for Fiscal Year 2015 and the Consolidated and Further Continuing Appropriations Act for Fiscal Year 2015 directed the Department to conduct additional analyses of the MFFF construction project. These analyses will include independent cost and schedule estimates, and examination of alternative approaches for disposition of the 34 metric tons of weapon-grade plutonium and their relationship to the Plutonium Management Disposition Agreement (PMDA). The Department has requested Aerospace Corporation, a federally funded research and development center, to perform these analyses. They will be completed during FY 2015, and will inform a final decision on the path forward. The FY 2016 request emphasizes that while the Department continues to evaluate disposition paths (including the MFFF) to determine the most responsible path forward, any viable alternative will require a significant amount of funds to implement.

Nuclear Counterterrorism and Emergency Response

The FY 2016 Request consolidates counterterrorism and emergency response funding into a single Nuclear Counterterrorism and Incident Response line in the amount of \$234.4 million.

Within NCTIR, the Nuclear Counterterrorism Assessment program represents the primary scientific program to assess the threat of nuclear terrorism and develop technical countermeasures against it. The knowledge generated under this program ensures that NNSA's technical expertise on nuclear threat devices informs DoD and FBI emergency response capabilities. We have taken steps to address funding reductions to the nuclear counterterrorism activities. Over the last two years these activities, formerly known as Counterterrorism and Counterproliferation within the Weapons Activities appropriation, have been funded at a level significantly below the requested amount—70% of the Request in FY 2014 and 60% in FY 2015. The FY 2016 request would dedicate \$57.8M to Nuclear Counterterrorism Assessment in support of improvised nuclear device analysis. Additionally, the request includes funds within Defense Nuclear Nonproliferation R&D for materials characterization experiments and other research, which supports nuclear counterterrorism and incident response missions. Full funding of both lines will make it possible to continue NNSA's vital counterterrorism work at the national laboratories.

NCTIR continues to work domestically and around the world to improve preparedness and emergency response capabilities. Its expert scientific teams and equipment provide a technically trained, rapid response to nuclear or radiological incidents worldwide. NCTIR assesses nuclear or radiological threats and leverages that knowledge to provide contingency planning and training to support national and international counterterrorism and incident

response capabilities. In 2014, NNSA's emergency response teams deployed more than 100 times in support of law enforcement and for major public events, such as the Super Bowl, and conducted five large-scale field exercises with partners from the FBI, DoD, and FEMA. In addition, they deployed over 70 times in support of DHS Domestic Nuclear Detection Office support to state and local first responders. Internationally, NNSA conducted 16 training courses to improve its foreign partners' emergency management capabilities and continued to work bilaterally with Israel, Vietnam, Cambodia, Thailand, Chile, China, Mexico, Argentina, Brazil, Taiwan, Canada, France, Jordan, the Nordic countries, Armenia and Kazakhstan. New programs were also started with Romania, Belarus and the Philippines. These initiatives represent our effort to create a truly global defense against the threat of nuclear terrorism.

NCTIR will also continue the initiative to equip cities with stabilization equipment and training, to ensure a prompt and effective response to nuclear terror threats.

NCTIR also executes the DOE's Emergency Management and Operations Support program that manages the Emergency Operations Centers, Emergency Communications Network, and Continuity Programs for all of DOE, including NNSA.

Naval Reactors Appropriation

Advancing Naval Nuclear Propulsion

During the past year, NNSA helped celebrate the 60th Anniversary of the USS NAUTILUS first getting underway on nuclear propulsion. The Naval Nuclear Propulsion program pioneered advances in nuclear reactor and warship design – such as improving reactor lifetimes, increasing submarine stealth, and reducing propulsion plant crewing. An example is the technology being developed by Naval Reactors that will enable the Ohio-Class Replacement submarine to be designed for a 40-plus year operational life without refueling, resulting in significant savings.

During 2014, Naval Reactors continued its record of operational excellence by providing the technical expertise required to resolve emergent issues in the Nation's nuclear-powered Fleet, enabling the Fleet to steam more 2 million miles. Through the work of its laboratory and highly skilled personnel, Naval Reactors also advanced the Ohio-Class Replacement and the S8G Prototype Refueling projects as well as initiating integrated testing of the lead A1B reactor plant for the next generation FORD-class aircraft carrier.

It is generally not well-known that if anything goes wrong with a reactor on one of the Navy's nuclear carriers or submarines while they are at sea, Naval Reactors' cadre of experts provide around-the-clock technical support, and can often resolve the problem and prevent the ship from having to return to port to be checked out and repaired-- which would be quite costly and disruptive to the Navy's deployment schedules.

The budget request for Naval Reactors is \$1.4 billion, an increase of \$141.6 million, about 11.5% from the FY 2015 enacted level. The request includes the base funding required to safely

maintain, operate and oversee the Navy's 83 nuclear-powered warships, constituting over 45% of the Navy's major combatants. The increase supports three high priority activities: \$186.8 million to continue development of the advanced *Ohio*-Class Replacement reactor; \$133 million to continue preparations for the refueling and overhaul of the Land-Based Prototype reactor plant; and \$86 million to continue the design work of the Spent Fuel Handling Recapitalization Project started in FY 2015. To this end, we would like to thank the Subcommittee's support for appropriating \$70 million for Spent Fuel Handling Recapitalization Project in the FY 2015 enacted budget. These activities are essential to maintaining a credible sea-based strategic deterrent, to maintain the research and training capabilities of the Land-based Prototype, and to maintain the capability to safely inspect, store and package naval spent nuclear fuel.

NNSA Federal Salaries and Expenses Appropriation

NNSA Federal Salaries and Expenses (FSE) Request is \$402.7 million, essentially equal to the rate of operations in FY 2015, but 8.9% above the FY 2015 enacted level. The Request provides funding for 1,690 full-time equivalents (FTEs) and support expenses needed to meet mission requirements. We are actively engaged in hiring to that number in a thoughtful and strategic manner. I would note that the Request represents an increase of only \$1.5 million from the FY 2015 planned execution level of \$401.2 million. This is due to the fact that the FY 2015 enacted level was significantly below the request and we will need to use over \$30 million of planned carryover to sustain the currently projected operations of the NNSA federal workforce. We built up that reserve through prudent planning and execution to enable us to pay for large one-time costs, such as the movement of much of our federal workforce in Albuquerque into newer leased space. The increase includes a 1.3 percent cost of living adjustment and benefits escalation, additional support to stand up the Office of Cost Estimation and Program Evaluation (CEPE) office in accordance with Section 3112 of the FY 2014 National Defense Authorization Act (NDAA), and funding to improve financial systems integration within the nuclear security enterprise in accordance with Section 3128 of the FY 2014 NDAA.

In FY 2016, NNSA will continue its on-going efforts to plan strategically to meet current and future workforce needs by analyzing how evolving missions are affecting job requirements. Reshaping of the workforce over the next several years will be essential, including obtaining both the right staffing size and skill sets. NNSA will also continue to identify efficiencies, particularly in travel and support services, to provide a lean and efficient organization and to support the President's Executive Order "*Promoting Efficient Spending*".

Management & Performance

To enhance our ability to carry out our mission and execute this budget request, we will continue to focus on improving our project management and cost estimating capabilities. In keeping with the Secretary of Energy's increased focus on Management and Performance, the NNSA is committed to manage its operations, contracts and costs in an effective and efficient manner. The NNSA's Office of Acquisition and Project Management (APM) is driving continued improvement in contract and project management practices. APM is leading the NNSA's effort

to deliver results by instituting rigorous analyses of alternatives, providing clear lines of authority and accountability for federal and contractor program and project management, and improving cost and schedule performance. NNSA participates in the Secretary's Project Management Risk Committee as a means to institutionalize and share best practices across the Department.

We have used strategic partnerships with the National Laboratories to rethink some of our most challenging projects. As a result of the Red Team review of the UPF at the Y-12 National Security Complex, led by the director of the Oak Ridge National Laboratory, and a similar approach to the Chemistry and Metallurgy Research Replacement (CMRR) Facility capability at Los Alamos National Laboratory, we are developing a disciplined, modular approach for both sites that will remove risks early in the process, and establish a well-defined cost and schedule, both of which were lacking in earlier efforts. This process will be an important and recurring project management theme at the NNSA and across the Department of Energy.

The CEPE was established in September 2014 pursuant to the FY 2014 National Defense Authorization Act. This legislation recognized the effort to improve cost estimating that the NNSA had already started. The CEPE office is a prime example of actions taken to improve our cost estimation efforts. Forging a strong partnership with the Department of Defense (DoD) Office of Cost Assessment and Program Evaluation (CAPE), including joint training activities with CAPE, we have made good progress in establishing CEPE as an independent office. CEPE will provide independent cost estimating leadership, rigorous program analysis, and prudent fiscal guidance. Getting CEPE fully functional is a high priority for NNSA, and we will closely monitor its progress as it grows into its full potential over the next few years.

Conclusion

The NNSA executes vital missions to ensure nuclear security at home and abroad. We do this by delivering the technology, capabilities and infrastructure essential to a 21st century national security organization. Our workforce continues to rise to the challenge and deliver mission effective and cost efficient nuclear security solutions critical for the NNSA to succeed in today's fiscal climate.

In closing, I would also like to mention that the President's Budget Request is just the first in a series of documents slated for release this spring. The most important of those yet to be released is the NNSA Strategic Plan, last updated in May 2011. The goal of this document is to provide a single integrated guidepost for NNSA's leaders, our partners at the labs and plants, and Congress and our external stakeholders. The new strategic plan will articulate a clear direction and mission to everyone – no matter their rank or position. Also to be released is the Congressionally-mandated Stockpile Stewardship Management Plan (SSMP) which details NNSA's multi-year plan for delivering a safe, secure and effective nuclear stockpile. And for the first time, we plan to release a companion plan to the SSMP, tentatively titled, "Prevent, Counter and Respond" to address our plans for nonproliferation, counterterrorism and emergency response programs. Finally, a report is being prepared for Congress in response to

the Final Report from the Congressional Advisory Panel on the Governance of the Nuclear Security Enterprise, co-chaired by Norm Augustine and Admiral Rich Mies.

Again, thank you for the opportunity to appear before you today.

Mr. SIMPSON. Ms. Harrington.

Ms. HARRINGTON. Thank you. Chairman Simpson, Ranking Member Kaptur, thank you so much for the opportunity to present the President's fiscal year 2016 budget request for the Defense Nuclear Nonproliferation account. We value this Committee's support for the mission and people of NNSA and are proud that our programs accomplished so much over the past year. Those accomplishments are captured in this recently released report, and we believe that the annual publication of "Prevent, Counter, and Respond—A Strategic Plan to Reduce Global Nuclear Threats" will help better explain and elaborate what our program does.

The report describes a highly complex and often unpredictable threat environment and our strategy to respond to it. As the Ranking Member pointed out, a year ago when we were here, Russia had only recently invaded Crimea, but we had not yet seen the buildup of armed conflict in eastern Ukraine or the rapid expansion of ISIS in the Middle East. These developments need the programs in this account to be able to execute our activities both for the threats that we can identify, but to remain agile, flexible, and ready to respond to the threats we cannot anticipate.

To respond to this dynamic environment we have implemented a strategic approach that brings the Nuclear Counterterrorism Incident Response and Counterterrorism and Counterproliferation Programs from the Weapons account to the Defense Nuclear Nonproliferation account. In addition, within my own program, the Defense Nuclear Nonproliferation Programs, we reorganized as of January 1, 2015. We believe that these realignments strengthen our capability to respond to threats, and we propose to align program budgets to this new structure. By combining nuclear nonproliferation, counterterrorism, and response capabilities, we link our core competencies to meet the enduring and emerging threats that we face by preventing, countering, and responding to nuclear and radiological proliferation and terrorist acts.

I know we are short on time, so I will submit the remainder of my statement for the record. I would like to note, however, that within the Counterterrorism Program activities in that area have been substantially funded below the requested amounts for the last 2 years. We consider this a high priority, and I cannot overstate the importance of our request to restore \$25 million for this crucial work in fiscal year 2015, as well as the need to stabilize funding in the future.

Thank you for your attention, and I look forward to your questions.

Mr. SIMPSON. Thank you.

Admiral Richardson.

Admiral RICHARDSON. Chairman Simpson, Ranking Member Kaptur, thank you again for the opportunity to testify before you today. And I want to start off by saying how grateful I am for the support of this subcommittee for our work, and look forward to the discussions of the fiscal year 2016 budget request.

First and foremost, I think I must recognize that since my last testimony before this subcommittee, U.S. nuclear-powered warships, the 10 aircraft carriers, 14 ballistic missile submarines, 53 attack submarines, and 4 guided-missile submarines operated for

another year safely and effectively, steaming more than 2 million miles in support of our Nation's interests, and 2014 had a number of highlights of those operations that I would be grateful to talk about at a time when we have more time.

Notably, though, this past January we celebrated the 60th anniversary of the submarine USS Nautilus getting underway on nuclear power. At a ceremony that recognized that event, Secretary Mabus, Secretary of the Navy, announced that the next attack submarine will be named after my predecessor and the father of the nuclear Navy, Admiral Rickover.

So this progress and service to the fleet would be impossible without the steady support of this subcommittee. Naval Reactors' request for fiscal year 2016 allows us to continue this work. The funding request, as you noted, sir, is for \$1.38 billion, an increase of 11 percent over the 2015 enacted funding level, but this request permits Naval Reactors to continue to support today's operational fleet by funding the talented engineers, tradesmen, and scientists that make up my technical support base.

The request also enables us to deliver tomorrow's fleet by funding three national priority projects: designing a new reactor plant for the replacement to the Ohio-class submarine; related to that Ohio-class replacement, refueling the research and training reactor in New York; and then building a new spent fuel handling facility in Idaho.

And I just want to pause here again to thank the subcommittee for your support in fiscal year 2015 there, providing funding for that, and we are sprinting out of the blocks on that. I recently signed Critical Decision 1 approving that major milestone in this important project.

Mr. Chairman, Naval Reactors' fiscal year 2016 budget request is part of a closely coordinated and coherent Department of the Navy and Department of Energy budget that supports both my responsibility to regulate the safe and effective operation of the nuclear fleet and my role in both Departments of Defense and Energy to support the security of our Nation today and in the future.

Thank you for the longstanding support of this subcommittee, and I look forward to discussing my program with you.

Mr. SIMPSON. Thank you.

[The information follows:]

**Statement of Admiral John Richardson
Director, Naval Nuclear Propulsion Program
National Nuclear Security Administration
U.S. Department of Energy
on the
Fiscal Year 2016 President's Budget Request
Before the
House Committee on Appropriations
Subcommittee on Energy & Water Development**

March 25, 2015

Since my last testimony before this subcommittee, U.S. Nuclear Powered Warships – 10 aircraft carriers, 14 ballistic missile submarines, 53 attack submarines, and 4 guided missile submarines – operated for another year safely and effectively, steaming more than 2 million miles in support of our nation's interests. Some highlights of those operations include the nuclear-powered aircraft carrier, USS GEORGE H.W. BUSH (CVN 77), the only coalition strike option in the fight against ISIL militants for 54 days, executing 20-30 sorties each day. Our ballistic missile submarine force completed their 4000th strategic patrol, continuing over 50 years of peacekeeping capability through strategic deterrence. The USS GERALD R FORD began her propulsion plant test program and will proudly set sail for the first time next year. The attack submarine USS NORTH DAKOTA (SSN 784) was commissioned in November. We christened the USS JOHN WARNER, a submarine named after a truly great member of the Senate. We laid the keel for the USS ILLINOIS, our thirteenth Virginia-class submarine. Finally, this past January, we commemorated a truly historic event for Naval Reactors and the Nation. We celebrated the 60th anniversary of the submarine USS NAUTILUS (SSN 571), the world's first nuclear-powered ship.

Additionally, we finally completed construction and infrastructure projects, some deferred from 2010, to maintain and upgrade the facilities our engineers require to attain these important successes in the fleet. The \$75 million Cask Shipping and Receiving Facility in Idaho completed and opened this year under budget and will soon begin receiving shipments of Naval Spent Nuclear Fuel in support of the USS ENTERPRISE defueling.

This progress and service to the fleet is only possible through the firm support of this subcommittee. Naval Reactors' request for FY16 allows us to continue this work. The funding request is for \$1.375 billion, an increase of \$136 million (11 percent) over the FY15 enacted funding level. The requested funding permits Naval Reactors to continue to support today's operational fleet, as well as deliver tomorrow's fleet by funding three national priority projects. The projects are:

- Designing a new reactor plant for the replacement for the OHIO-class SSBN
- Refueling a Research and Training Reactor in New York
- Build a new spent fuel handling facility in Idaho

The FY16 request adequately funds all of our requirements: the highly-qualified people, equipment, facilities, and technology development needed to support today's nuclear-powered fleet, and the three projects in support of tomorrow's fleet.

Uncompromising and timely support for safe nuclear fleet operation will always be the highest priority for Naval Reactors. \$973 million of my budget request funds the technical support base for the 96 operating reactors at sea on ships and at our training and research sites. The extremely talented men and women, along with the equipment and facilities upon which they depend, stand ready 24 hours per day, 365 days per year to respond to advance the mission and respond to emergent fleet needs for assistance. They are the principal reason that the Program has delivered 60 years of safe and effective operations by ships on station supporting our national interests. The teams at our four Program sites – the Bettis Laboratory in Pittsburgh, the Knolls Laboratory and Kesselring Site in greater Albany, and our spent nuclear fuel facilities in Idaho – perform the research and development, analysis, engineering and testing needed to both support today's Fleet and develop future nuclear-powered warships. Importantly, they perform the technical evaluations that enable me to thoroughly assess emergent issues and deliver timely responses that both ensure nuclear safety and maximize operational flexibility. This technical support base is essential to enabling our submarines and aircraft carriers to deploy.

Funding reductions in FY15 most directly impacted this technical support base. The funding levels provided in FY15 will result in a delay to the start of the Engineeroom Team Trainer facility in upstate New York, a structure that will host a first-of-a-kind nuclear simulation technology. This training simulation technology, when built, will lower the cost and improve the effectiveness of providing nuclear-trained sailors in the future. The delay in building this technology also reduces our future training capacity and will limit the number of nuclear-trained sailors provided to the fleet. I have again requested funding for this essential facility in my FY16 request. FY15 funding levels also prevented construction of the Central Office and Prototype Staff Buildings in New York. These buildings were planned to accommodate the over 200 engineers and training staff that will arrive at the site in FY17-21 to conduct the S8G Prototype Refueling Overhaul discussed below. As a result, I will have to procure, at nearly the same total cost, temporary office spaces and trailers, reducing worker efficiency, effectiveness, and quality of life.

In addition to funding the technical support base, my request in FY16 includes \$186 million to continue Naval Reactors' efforts in designing a new reactor plant for the OHIO-Class Replacement. Activity this year includes reactor plant design and component development to support procurement of long lead components starting in FY19. Progress in these areas in FY16 will ensure that the advanced capability that the life-of-the-ship reactor core provides is delivered in a technically satisfactory and cost effective manner in time to support lead ship construction beginning in FY21.

Related to the OHIO-class Replacement, the FY16 request includes \$133 million in funding for the Land-based Prototype Refueling Overhaul in upstate New York. Refueling this reactor supports two major purposes: reducing cost and schedule risk to the life-of-ship core for OHIO-class Replacement project and supporting training of about 1000 Sailors per year for the next 20 years. In FY15 and FY16, Naval Reactors continues the core manufacturing development work needed for the Refueling Overhaul and the plant service life engineering design to ensure that the

Land-based Prototype plant overhaul is performed concurrently with the refueling that starts in FY18.

Finally my FY16 request contains \$86 million to continue the Spent Fuel Handling Recapitalization Project (SFHP). Thanks to the support Congress provided in FY15, we will complete the facility conceptual design and issue a draft Environmental Impact Statement this year. The FY16 request will allow us to publish the final Environmental Impact Statement, set key facility dimensions, and continue to advance the design. Continued support in FY16 and beyond is essential to ensure the facility can begin receiving spent fuel from the fleet in FY25. Further delays to the project schedule incur costs of approximately \$150 million per year to procure shipping containers to temporarily store the spent fuel from aircraft carrier refuelings. Delays to date have incurred over \$500M in costs for temporary containers. More of these containers will not be necessary if the project stays on track.

In developing our request, I have worked closely with the leadership of the National Nuclear Security Administration (NNSA), the Department of Energy (DOE), Office of Management and Budget and the Department of Defense. This budget not only reflects my priorities for Naval Reactors but also integrates them with the other important work of my colleagues at NNSA. There is clear recognition of the valuable capabilities Naval Reactors provides and our history in effectively meeting our obligations. I understand the difficult budget environment in which Congress must craft legislation and I respectfully urge your support for aligning allocations with the FY16 Budget Request.

Naval Reactors' FY16 budget request will ensure that I can meet my statutory responsibilities to maintain a safe and effective nuclear-powered Fleet, continue environmental stewardship at my program sites, and progress OHIO-Class replacement, Land-based Prototype Refueling Overhaul and the Spent Fuel Handling Recapitalization Project.

With the help of Congress, Naval Reactors is committed to executing our projects on time and on budget, and I to continue to search for the most cost effective way to support safe operations of the nuclear fleet.

Mr. SIMPSON. And, again, thank all of you for being here today. And as you mentioned, at 10:30 we are supposed to be on the floor for the President of Afghanistan is here to speak to Congress. So this will be a little bit abbreviated, but we will still be able to do our job.

Mr. Administrator, the Secretary has convened an Advisory Board of nuclear nonproliferation. The Board published an interim report in August of 2014 that found, one, the Department does not have a risk-informed analysis of priorities to guide its nonproliferation efforts and the U.S. Government does not yet have a compelling vision for the future of its nonproliferation efforts or how DOE's programs fit in that larger picture.

How does the nonproliferation budget request address the highest national security risks? Are there interagency efforts ongoing to create a vision that is needed for the nonproliferation programs? And have you developed risk-based analysis of priorities to guide the formulation of your budget, and how might this kind of analysis improve your efforts? You may have answered part of that with the reorganization during your opening statement.

General KLOTZ. Thank you for the question, Mr. Chairman. Let me just briefly open and then I will, obviously, turn to Ms. Harrington since this is her program.

In fact, the report that Ms. Harrington alluded to, the "Prevent, Counter, and Respond," is in fact a response to the findings of the Secretary of Energy's Advisory Board to come up with a coherent, long-term vision for how we work within the nonproliferation, counterterrorism, and incident response mission space. So we have labored long and hard to put together an integrated, comprehensive approach to that. And as we were doing that we were also developing the fiscal year 2016 budget request, so the two sort of synergistically fed off of each other and resulted in both the submittal that we have, the budget request, as well as this report.

Ms. HARRINGTON. I will add very briefly that in this report there is a graphic that we developed as part of this exercise that describes the threat continuum, ways in which we can respond, and which part of the organization would be responsible for various levels of that response, and where we worked together and where we have somewhat independent approaches. It also describes how we work together within the U.S. Government interagency and with international partners.

The timing of the Secretary of Energy's Advisory Board interim report was, in fact, almost perfect in terms of meshing with our own internal thinking about what we needed to do, and we benefited greatly from a number of conversations with that task force.

Mr. SIMPSON. Admiral, first of all, the 60th anniversary of the Nautilus, huh?

Admiral RICHARDSON. Yes, sir.

Mr. SIMPSON. That is amazing.

Admiral RICHARDSON. Prototype for that, as you know, is up at our lab in Idaho.

Mr. SIMPSON. Right. Right. It is hard to believe that the nuclear Navy has been around almost as long as I have. That is kind of scary, you know that?

Even though overall funding for the Naval Reactors has been increased 31 percent over the past 5 years, this amount is short of the total amounts requested for your program in each of those years. To meet those differences between planned increases and actual funding levels, Naval Reactors has had to defer many of its planned activities and even transferred funds from the Navy under the Economy Act of 2014. To understand the long-term impacts of your program the committee directed Naval Reactors to conduct a comprehensive budget review this year.

Have you completed the directed budgetary review, and if so, what have you found? How has the Naval Reactors program coped with funding levels provided over the past several years? And are any additional Economy Act transfers from the Navy planned or was this a one-time occurrence?

Admiral RICHARDSON. Sir, thank you for the question. We are in the final coordination for that report, and we should be sending that over to you very, very shortly.

With respect to the construction of our budget and the management of shortfalls over the past few years, we have, exactly as you said, been just managing by deferring required maintenance. And so, for instance, we have deferred over 40 projects that address matters like failing sewage systems, plumbing systems, electrical systems that are as old as Nautilus in some cases, 60 years old, since the dawn of the atomic age.

When shortfalls come, as you know and as was discussed before we are going to prioritize the money to continue the operational mission today and service that fleet tomorrow, and so these are the sorts of decisions that get made. But it does result in a degradation of those facilities over time.

As well, of those 40 smaller projects, in addition to those, four major construction projects have been deferred as well.

As you know, the Economy Act transfer resulted from the fact that we just were unable to afford some significant maintenance on operating reactors in New York and some high-performing computers to continue the Ohio replacement. That Economy Act transfer was not a planned event, that was a reactive event, and we certainly don't have any of those types of activities planned in the future.

Mr. SIMPSON. Do you believe with the budget request that you have this year, that if it were met there wouldn't be an Economy Act transfer, it wouldn't be necessary?

Admiral RICHARDSON. Sir, our budget request is a judicious request that supports our work, and if that request is met there will be no transfers required.

Mr. SIMPSON. Okay. Thank you.

Admiral RICHARDSON. Yes, sir.

Mr. SIMPSON. The Advanced Test Reactor serves an important role for our nuclear Navy, as well as for civilian nuclear research and development. The ATR is an aging reactor that will require investments to keep it operating into the future. The Office of Nuclear Energy has been working with Naval Reactors to develop a plan to address those needs, but so far we haven't reached a mutual agreement on those needs.

What is the status of the joint planning effort and what is causing the delay and what is holding things up? What is your assessment of the status of maintenance and operations of the ATR? Is the facility in a position to support Naval Reactors' needs for the foreseeable future?

Admiral RICHARDSON. Sir, I think with respect to the Advanced Test Reactor, a couple of things that characterize our approach. One is it is absolutely critical to our business. It is a unique capability that we rely on to do critical testing of materials going forward. So it is absolutely fundamental to what we do.

The second feature is, as you said, it is an aging reactor. This is another reactor that is about 50 years old. And so those require maintenance to maintain safe and reliable operation.

We have been working very closely with the Office of Nuclear Energy and the operators of the Advanced Test Reactor, and any delays have been refining and getting sufficient level of detail in terms of what it would require to arrive at a stable, predictable, comprehensive funding level that would actually improve the reliability of that reactor going forward.

And so that has been a back-and-forth process, but until I get that, I would be unwilling to come to you and make a request for increased funding.

As it so happens, I got that final plan in my headquarters on Monday evening. We are working very closely to just mop up some few small questions. I anticipate that this summer we will have a comprehensive plan to go forward and continue to keep the Advanced Test Reactor operating and doing the critical work it does for our program.

Mr. SIMPSON. Thank you.

Mr. Administrator, the DOE and the NNSA are moving forward to meet the direction from this subcommittee to submit an independent verified life cycle cost estimate for the MOX and downblend options of the Plutonium Disposition Program. This estimate is due next month. There was also related direction to the Department in the National Defense Authorization Act, which is due in September.

Are you aware of any errors or shortcomings in the report you submitted last spring which analyzed the five alternatives? How did or will you weigh political and practical risks with alternatives to MOX? And should the lowest total life cycle cost operation be the primary criteria for selecting an alternative? With the shutdown at WIPP, is it feasible that these proposed materials, if it was blended down, would go to the Waste Isolation Plant? And will the Department select a preferred alternative at the conclusion of these review processes? Touchy subject.

General KLOTZ. Thank you, Mr. Chairman.

As you know, in the fiscal year 2015 budget request, the Administration had recommended \$221 million to put the MOX Fuel Fabrication Facility Project into cold standby. Others had a different opinion, and we were directed to continue construction, which we did. And then in the fiscal year 2015 enacted omnibus appropriation, the \$221 million was actually plussed up to \$345 million, with the instruction to continue construction, which we are, and also to do the two reports which you just mentioned.

So this year we are requesting \$345 million. It is essentially a continuation of services, level funding approach to that, while we wait for the results of these two reports.

My understanding is the first report, which is due on April 15, is on time, on schedule, so it will be delivered at that time. It addresses essentially two options. One is continue with MOX, the MOX plan. The other is to consider one of the five options which we rolled out in a report almost a year ago last April known as the dilution and disposition option. The other one in September will be done, will look at all five options which we looked at.

So I think it is probably best to wait till we see what actually comes out of that report. They are still working on it. But as I said, I am pretty optimistic that it will be out in mid-April.

And then our expectation is we will engage in a dialogue with the interested parties in Congress in terms of where we go forward, not only as an administration, but as a government in how we deal with the disposition of 34 metric tons of weapons grade plutonium, which we have agreed to do in an agreement with Russia.

Mr. SIMPSON. It in large part becomes a political decision then.

One other question. Ms. Harrington, in February DOE issued a final Part 810 rule, the regulation governing the export of nuclear technology. A chief concern of the regulated community is the slow and inefficient process through which it has been administered. This slow process puts U.S. firms at a competitive disadvantage to nuclear exporters from other countries, diminishes U.S. influence on the nuclear safety, security, and nonproliferation norms, and ultimately costs American jobs.

Though many of the concerns identified by industry were not addressed in the final rule, the NNSA has provided strong assurances that it would remedy its inefficient licensing approval process through a process improvement program.

How is the NNSA improving its process, and how much of this budget request will go toward achieving meaningful improvements? What is the average processing time for a typical application? And why didn't the final rule establish any time limits on the NNSA for processing of applications?

Effective implementation of the PIP is vital to U.S. competitiveness. What are the implementation schedules for the PIP and what metrics are you using to track its success?

Ms. HARRINGTON. Thank you for that question. I will take parts of it for the record, because I don't have all the details with me.

But what I can tell you is getting the performance improvement plan and the e-licensing system active are high priorities, not just for my office, but for the Administrator and for the Secretary.

We were recently asked what would be needed to accelerate getting the e-licensing system up and running. The issues that we are dealing with right now are mostly involved with security. And if we cannot guarantee security to our U.S. applicants, then we will have a serious problem with them feeling comfortable using the system.

I actually saw the demo of the system just yesterday and was very impressed. I think this is going to be a user friendly system. It will have layers of security. They are putting some polishing touches on a number of things. And we have now started looking internally to identify some additional funds this year in appro-

priate budgets to be able to accelerate the completion of that system so it will be up and running soon.

But in terms of the details of the dates and so forth, that is a little bit in flux right now because we are right in the middle of an acceleration process. But we are giving this very high priority. We are very happy with the way the rule came out. Our feedback from industry so far has been very successful. The next major hurdle, as you noted, is getting the licensing system up and running.

Mr. SIMPSON. Thank you.

Ms. Kaptur.

Ms. KAPTUR. Thank you, Mr. Chairman.

General Klotz, in the 2015 omnibus bill Congress prohibited new funds from being used for new projects in Russia without a secretarial waiver explaining why such work is in the U.S. National security interest.

Could you please tell us, is there any funding in this budget request for work in Russia?

General KLOTZ. Can I defer that to Anne?

Ms. KAPTUR. Please.

Ms. HARRINGTON. There is no funding in this budget for Russia. It did not escape our notice that the funding for 2015 was taken out of the budget for Russia. We agreed with that move, and therefore did not include funding in 2016.

Ms. KAPTUR. So are we to assume the NNSA has terminated all ongoing work in Russia?

Ms. HARRINGTON. We have not. There is still some work that we can do in Russia. Russia remains a very high priority for us because of the amount of material that is in Russia, the continued vulnerability of their security and material accounting systems, and the ongoing threat of nuclear trafficking, much of which has historically come out of Russian facilities. They also have insider threat within their facilities, and we have seen examples of this in the past.

So we remain open to collaboration with Russia in very narrow areas of nuclear security, nonproliferation, and threat reduction.

Ms. KAPTUR. Ukraine was left with a nuclear legacy from the Soviet Union. Ukraine has also become an important state for countering smuggling of nuclear materials out of Russia, where the largest stockpiles of dangerous nuclear materials exist. Could you please tell us what the NNSA is doing, if anything, in Ukraine, considering the present situation there?

Ms. HARRINGTON. I would be very happy to. As you might remember, shortly after the Russian incursion into Crimea at the beginning of last March, we had the 2014 Nuclear Security Summit in The Hague. On the margins of that meeting various countries, including the United States, got together to discuss what we could do to provide assistance to Ukraine in this very critical period.

We have continued to work very closely with the Ukrainian Government at all levels, including with the President, to identify what actions both the United States and the international community could do to reinforce border security; to help them stand up an expanded national guard capability; and our colleagues at DOD were very instrumental in that capacity; and also to strengthen the borders on the exterior of Ukraine so that if something were to come

over, nuclear material, radiological sources, whatever might pose a threat or be attempted to smuggle, if something came through the eastern area of Ukraine then we would be able to identify it if it were taken out of Ukraine.

We also provided radiological pagers to law enforcement and training. And we continue to work with them. About an additional million dollars has been put into shoring up those capabilities over the past year.

General KLOTZ. If I could add, Ms. Harrington's staff has prepared for me, I think, a very helpful matrix which lays out all the work that we have in the fiscal year 2015 budget as well as what is in the fiscal year 2016 request in the area of the Neutron Source Facility, nuclear smuggling and detection work, radiological security, nuclear forensics laboratory.

So with your permission, I would like to submit this for the record. That provides a breakdown by every spending category, what we propose, what we have been doing, what we propose to do in Ukraine.

Mr. SIMPSON. Okay.

Ms. KAPTUR. General, from your knowledge, what is the best way to ensure the security of nuclear material when you are dealing with unstable countries?

General KLOTZ. Well, in dealing with unstable countries, that tends to be one of our greatest concerns, is in areas where there may not be as great of control over the full range of facilities within that country, that is where security becomes extraordinarily important.

In the case of Ukraine, we are working with the Ukrainian Government. They have been very cooperative. They have asked a number of things from us. We have had our people, Anne's Deputy was just over there a few weeks ago along with Under Secretary of State Rose Gottemoeller, looking at one of the facilities that we had helped work with.

But this is an extraordinarily important task, not just in Ukraine, but across the range of countries that we have to deal with to make sure that the special nuclear materials and the radiological materials in both established countries, but also countries that have internal difficulties, are secure, because the one thing that a potential proliferant or the one thing that a potential terrorist needs is access to that material.

Ms. KAPTUR. Ms. Harrington, on this report that you referenced, in terms the American people can understand, could you summarize other areas of the world that are in turmoil where we have either lost track of or in danger of losing track of dangerous nuclear materials?

Ms. HARRINGTON. I can answer some of that here, but most of the answer we would prefer to give you in a classified briefing—

Ms. KAPTUR. All right.

Ms. HARRINGTON [continuing]. Just because there are sensitivities we shouldn't talk about here.

Ms. KAPTUR. I understand. And I know the chairman has a time problem.

I will just say for the record here, Mr. Chairman, going back to 1994 when this country was as a signator to something called the

Budapest Memorandum, and the United States, along with our partners in Britain and Russia at the time, promised Ukraine that if she were to give up her nuclear weapons, which she agreed to do, that she would have a security agreement that would protect her territorial integrity.

That isn't being done, and it creates a very difficult situation, I think, for our country to have signed an agreement where words are now being interpreted in a different way.

So you probably didn't have anything to do with that at the time, maybe tangentially you did, but I just say as an American and as a Member of Congress, that is very troubling to me, when we don't keep our word.

Thank you, Mr. Chairman.

Mr. SIMPSON. Mr. Valadao.

Mr. VALADAO. Thank you, Chairman.

Thank you, Administrator, Admiral, Ms. Harrington, for coming today.

Admiral, last year Naval Reactors were embroiled in a cheating scandal where it was discovered that dozens of personnel in the nuclear Navy had viewed a leaked exam, training exam, at some point over the past year and did not report it. What have you done over the past year to prevent such events from happening again in the future, and what did you find to be the root causes of these circumstances, and do you believe they have been addressed?

Admiral RICHARDSON. Sir, thank you for that question. And obviously we have taken that incident very, very seriously in our program.

Our efforts formed up along three major vectors. I will outline the three vectors quickly, but then I want to spend our valuable time here talking about what I think is the most fruitful one.

First and perhaps most direct, we did have to address the specific misconduct of those individuals that were involved, and so I have been through that, and I made myself the consolidated disposition authority for those matters. We investigated and heard every one of those cases, and at the end of the day, on the order of 37 sailors were found guilty in that incident. Thirty-seven more were found to be completely innocent as well, and so we did do a thorough investigation of those.

Second, we also took a look at just our exam security processes, our procedures there, found some vulnerabilities, and we have closed up and continue to improve exam security.

The third and most fruitful effort was to really look at kind of the climate or the command atmospherics that may have led to this. And even though that type of behavior we could never condone, neither can we pass up the opportunity to look at ourselves very hard and see what sort of systemic changes that we can take.

And so over the last year, almost immediately after the event, we held a leadership summit, first of its kind, at my headquarters where we brought in the leadership from around our program to discuss that event and discuss what may have contributed to it. And since then, guided by the insights from that initial summit, I personally have held townhall events at our training command certainly where the incident took place, but also the fleet centers, with

my headquarters leaders, with the future commanders in the Navy at the Naval War College, and shipyard leaders.

And so in summary, over the past year I have probably personally talked to 2,500 people in a training-slant-townhall type of an event, and those lasting 90 minutes to 2 hours apiece. Guided by the insights from that meeting, I have also had the opportunity to speak to Navy leadership at the four-star level and above about what we have learned.

We have also taken a look at the structure of the training program itself. We engaged the staff and faculty. We wanted to make sure that we got their insights, which are probably the most important. And, again, guided by what we learned there, we have removed over 100 requirements, which I would say the weight or the burden of accomplishing that requirement just didn't merit the benefit that we got out of it. And so we have removed those, more than 100, and there are more to come. We have adjusted the class sizes to better match the faculty size. And we have also improved the conduct of maintenance on the training reactor so that we provide them with more training time rather than maintenance time.

We have learned a number of things from that. I will tell you that my thinking has been greatly sharpened by what has been about a 6-month period of engaging in these townhalls, and I am right now doing the final reviews and I am ready to promulgate formal guidance that will institutionalize some of those lessons learned going forward, so we are just about at that time.

Furthermore, I am sharing all the lessons that we learned, lessons in my program, with big Navy, both by chairing an effort to reduce administrative distractions across the Navy and also to share with the Navy Leadership and Ethics Center in Newport, Rhode Island, those lessons that may be applicable to the broader Navy itself.

Mr. VALADAO. All right. Change the subject a little bit.

Mr. Administrator, the budget request again proposes to move counterterrorism and emergency response activities to the non-proliferation from weapons. Why do you believe these activities are better aligned with the nonproliferation programs, and how do they contribute to the advancement of the U.S. proliferation goals?

General KLOTZ. Thank you for that question.

There are two reasons. First of all, the money for counterproliferation, counterterrorism, incident response, emergency operations was nested primarily in the Weapons Activity account. Weapons Activity account is focused primarily on our life extension programs, as well as the infrastructure which supports our scientific, technical, and engineering efforts associated with the Weapons Activity. So we thought in terms of trying to understand where the money was it ought to go with what the function is.

The second aspect of it is, as we indicated in our statements, we are approaching the whole mission space associated with preventing nuclear terrorism and nuclear proliferation now as a continuum, a spectrum that runs from preventing would-be proliferators and terrorists from getting hold of nuclear material, and then if somehow they do, how would we counter that, and then God forbid somehow if they used an improvised nuclear device or a radiological device, how would we respond to that.

So it seemed to make sense to us both conceptually and in terms of keeping the books straight to have all that in the same appropriations account.

Mr. VALADAO. All right. Well, thank you.

Thank you, Chairman.

Mr. SIMPSON. Mr. Fleischmann.

Mr. FLEISCHMANN. Thank you, Mr. Chairman.

And, Ms. Harrington, General Klotz, Admiral Richardson, good to see you all. I know time is of the essence this morning, but I do want to thank you all.

Admiral, going to the chairman's district was wonderful in Idaho, and I appreciated that trip and I learned a lot about that, so I thank you all.

Mr. SIMPSON. You learned a lot about Idaho too, huh?

Mr. FLEISCHMANN. And they love their Congressman. Kudos to our great chairman.

Mr. SIMPSON. He is good.

Mr. FLEISCHMANN. Thank you.

I have got a few questions. Ms. Harrington, thank you. What is the focus of the new Global Material Security Program, given that the efforts with Russia have been significantly reduced?

Ms. HARRINGTON. Thank you, Mr. Fleischmann.

As I mentioned in response to Mrs. Kaptur, we still will continue a limited amount of activity in Russia, but not with any funds from 2016. We are working through whether we would propose to continue some under a waiver, but that process is not yet complete.

But also, as Mrs. Kaptur noted, there are many other countries of concern where there is instability, terrorist presence, and nuclear material, and in some cases nuclear weapons. And so our attention is turning increasingly to some of those challenges as well.

So across the global material security portfolio, we have found that there is no lack of work to do. When we executed our reorganization on January 1, we consolidated programs under that area in a way that I believe make much more sense functionally.

For example, our Nuclear Smuggling Detection and Deterrence program now includes the nuclear forensics element that previously lived in what is normally considered our policy office. So on nuclear smuggling, which falls under this program, we are now offering a comprehensive program that looks both at the detection, but also at the analytical side of identifying and then addressing material trafficking.

So we will come back to you as we go forward, probably in a classified setting, to describe in more detail some of these activities.

Mr. FLEISCHMANN. Thank you.

Ms. Harrington, if the administration concludes that there is no near-term need for creating new domestic uranium enrichment capabilities, do you worry that our technical leadership in this area could atrophy, and will we be at a disadvantage with respect to the development of new technologies for safeguarding or detecting enrichment facilities?

General KLOTZ. Let me take that, if I could, sir.

Mr. FLEISCHMANN. Sure.

General KLOTZ. As you know, we are maintaining in a warm status the centrifuges which were developed as part of the American

Centrifuge Project while we decide what, one, the need for U.S.-only unobligated low-enriched uranium will be for things like production of tritium and other needs in the United States.

Last year the Congress appropriated somewhere around \$96 million, \$97 million to do that. We are requesting \$100 million to do that in fiscal year 2016 while we continue the process of determining what are the tritium requirements, how much unobligated low-enriched uranium is there out there, and how long will that last to meet the national security needs that we have.

But we have to ask ourselves, I think, as a Nation, and this is what we will consider during the course of this year, is what is our requirement as a responsible nuclear power for the ability to do enrichment of uranium? And I think that is one of those overarching strategic questions which we are going to have to come to grips with as we work through this process of examining what our precise needs are, but the larger strategic question that I think is at the heart of your question.

Ms. HARRINGTON. I would add, that is also now in the Weapons account, not in the Defense Nuclear Nonproliferation.

Mr. FLEISCHMANN. I appreciate that. And as a followup to that, do you all believe that you have got sufficient resources to ensure that we maintain our technical competence in this area?

General KLOTZ. I think for the coming year we do. The question will be as we work through this process in the coming year we will have better answers for you at the conclusion of that.

Mr. FLEISCHMANN. Okay.

General KLOTZ. But I am satisfied. I had an opportunity, as you know, when you and I were last down in Oak Ridge, I went over to see our people who are doing this particular work and I visited the plant in Piketon, Ohio, and I am convinced that we have a very sophisticated cadre of people who are paying attention to this both on the federal side, as well as on the M&O contractor side. But we will have to make decisions soon about how we go forward in this particular activity.

Mr. FLEISCHMANN. Appreciate your efforts, and I thank you all very much.

And, chairman, I yield back.

Mr. SIMPSON. Admiral, the energy and water bill carries a provision each year which requires that all projects with a total project cost of greater than \$100 million have an independent cost estimate. I understand that Naval Reactors follows a slightly different project management process than the rest of the Department.

The current cost range for the spent fuel recapitalization tops out at about \$1.4 billion, which is about \$400 million more than the original cost range approved in 2008. Is it possible that there will be additional costs due to delays in funding since 2008, and what is the current estimated cost of this project, and what are the main risks to keeping those costs from rising farther? And when do you expect to provide the subcommittee with an independent cost estimate for the project?

Admiral RICHARDSON. Sir, I will tell you that the current cost of the project is about \$1.65 billion. Most of the cost increases that we have seen since the original proposal for the project are almost entirely due to escalation and delays.

There has been no change in the requirements of the project. The project continues to get more definition in terms of we start with a very firm understanding and statement of the requirements, we are now actually proceeding into more detailed design of those projects, following every intent of the DOE 413.3 Bravo instruction. And so even though we implement that under a Naval Reactors version of that, because of our dual-hatted nature, we meet or exceed the requirements of the DOE order.

I will commit to you that if we are funded according to the requests, there will be no cost increase, we will deliver that facility. Key to that will be making sure that our design is sufficiently mature, very mature, before we start building.

And we have learned the lessons from the rest of my colleagues at NNSA in terms of scoping the requirements for various parts of the facility so that we don't do everything according to the most stringent requirements. And as part of that process we will conduct an independent cost estimate, and be happy to share that with the committee.

Mr. SIMPSON. Thank you.

Admiral RICHARDSON. Yes, sir.

Mr. SIMPSON. Ms. Harrington, the United States previously advocated for the establishment of an international nuclear fuel bank to provide peaceful access to nuclear energy and to prevent proliferation of uranium enrichment capabilities. The basic fear was that developing states might be politically cut off from the nuclear fuel supplies and would therefore feel the need to have their own indigenous enrichment capabilities. The United States previously offered \$50 million for such efforts back in 2009, but not much has been done for the past several years.

Ukraine is now in the situation where their nuclear fuel supplies are in danger due to the political issues with Russia. Nuclear power supplies nearly 50 percent of Ukraine's electricity needs.

Is there anything that the DOE is doing or could be doing for Ukraine's nuclear fuel issues with reliance on Russia for its nuclear fuel, and should the U.S. be moving forward with this nuclear fuel bank to help out Ukraine and other countries that might be in the same predicament in the future?

Ms. HARRINGTON. Thank you, Chairman. Let me break that into the two components, first what is happening with the LEU fuel bank. We understand from the International Atomic Energy Agency that the host government agreement is now complete, and the plan is to submit it to the Board of Governors for concurrence in the coming months. So that is a very substantial step forward. There have been some issues back and forth between the IAEA and Kazakhstan about the details of that agreement. Those now appear to be resolved.

So we are very encouraged that both we, the European Union, and others who have provided funding to support both the fuel bank purchase of uranium as well as the physical fuel bank, that this is now going to come to fruition. So that is point number one.

Absolutely correct that Ukraine gives us a very good example of the kind of need that the fuel bank could respond to. Fortunately, in the case of Ukraine there was already a U.S. company that had been working in Ukraine to qualify its fuel. That would be Wes-

tinghouse, and that has been in the open press. What we understand is that the fuel is now qualified, it could be used in that reactor or in any similar reactors of Russian origin for power production.

So this, I think, illustrates again the close cooperation. On the fuel it is more of a nuclear energy issue, but we work very closely, because there are security nonproliferation elements to getting power into Ukraine.

So Pete Lyons, and I know you know him well, and I have met jointly with the Ukrainian regulator, and they seem very happy with this as a possible option for them in the future.

General KLOTZ. If I could just add to that, Secretary of Energy Moniz gave a major address on Monday in which I would say a third of his remarks focused on what we have been doing with Ukraine in the area of nuclear power. As he pointed out, and much more eloquently certainly than I can, over 50 percent of their power in Ukraine comes from nuclear sources. But as Anne alluded to, using Soviet, Russian-designed reactors meant that they were dependent upon Russian sources for fuel.

So we have for a number of years worked very hard to be able to qualify, we, the United States and U.S. industry have worked very hard to qualify fuels that could be used as an option in these reactors, as well as any reactors of Soviet or Russian design in any other states that surround Russia.

We have also been working on the waste side of that as well, how you would dispose, how Ukraine would be able, give them options, besides just repatriating spent fuel to Russia, as a means of dealing with that.

So this has been a very, very active program over several years, even preceding the Russian invasion of Crimea and disruptions in eastern Ukraine.

Mr. SIMPSON. Thank you.

Ms. Kaptur. Oh, Ms. Roybal-Allard. I know you have been at another hearing that I was at earlier also.

Ms. ROYBAL-ALLARD. Administrator Klotz, earlier the Nuclear Smuggling Detection and Deterrence program was referenced, and I was hoping you could provide more details.

Under the Department's budget request, the Nuclear Smuggling Detection and Deterrence program received roughly a 6 percent funding cut from fiscal year 2015. As you know, the Nuclear Smuggling Detection and Deterrence program, formerly known as Second Line of Defense program, is a key component of multi-agency, multi-layered defense network that strengthens our global capability to deter, detect, and interdict illicit trafficking in special nuclear and other radioactive materials at key international seaports.

What is the current status of the Nuclear Smuggling Detection and Deterrence program in successfully preventing smuggling of nuclear devices into the United States through our ports? And could you explain the reason for the requested reduction in funding from fiscal year 2015?

General KLOTZ. Yes, ma'am. If we could, we will tag team this.

Let me just say at the policy level, this is an extraordinarily important effort and activity that we are involved with. And the new term for detection and deterrence, I think, captures it very, very

well. There are those who would place a very, very high standard and say that we have to be able to detect absolutely everything that may come out of a particular country.

We have to be able to maximize, optimize our ability to detect, but a large part of it also is the deterrent. So if a would-be smuggler knows that there is a range of potential detection mechanisms which would keep him or her from smuggling that, we think that is a large part of the success. Same thing for airport screening, same thing for other types of screening at the border.

So, again, as we mentioned earlier, a key to keeping would-be proliferators and terrorists from doing what it is they would seek to do that would harm our interests and the interests of our allies, that the number one task is to keep special nuclear material out of their hands.

And if Anne can address the specific programmatic.

Ms. HARRINGTON. First, we absolutely agree with you that NSDD is a core element of our strategy. If we can eliminate the material at the source, that is our first preference. But if we can't, then you secure it. If the security fails, then you have to be able to detect and prevent the material from reaching either a trafficking network, a terrorist group, et cetera.

So we have established partnerships in 50 countries. We have over 3,000 fixed portal monitors at 550 sites, including 45 large container seaports, and we work very closely with the Department of Homeland Security on their Container Security Initiative, and those two dovetail in important ways. And we have got 76 mobile sites deployed in 18 countries.

One of the reasons you are seeing a small decline in the budget is because many of our partners are now moving into what we call the sustainability phase. They are now taking full responsibility for the maintenance and operations of these facilities, and we consider this a huge part of our success story, because it means there is a commitment on the other end to continue.

We, of course, will continue to exchange best practices, do exercises, and run training programs, some of which we do jointly with other elements of NNSA, for example our emergency response colleagues, but other of our training programs are actually codeveloped with the FBI and with law enforcement agencies in countries. So we are sure to bring all of those components together. But it is mostly the good news story about the ability of countries to assume their own responsibility for these facilities.

Also, we have a number of requests to work with countries that we consider high-income countries. So those are not places where we would provide actual funding for the equipment. We would support our laboratories and our technical experts to work hand in hand with those countries to develop systems, to help test and exercise systems, but the major investment would depend on our partner countries.

Ms. ROYBAL-ALLARD. Admiral Richardson, this month the Federation of American Scientists issued a report on shifting over time the Naval Nuclear Propulsion Program from high-enriched uranium to low-enriched uranium. The report specifically mentioned the advantages of an attack submarine design that will eventually follow the current Virginia-class design. This will reduce the pro-

liferation risk that the Federation sees in continuing to rely on high-enriched uranium.

What are your views on the findings and recommendations of this report and on the idea of shifting the Naval Nuclear Propulsion Program to greater use of low-enriched uranium?

Admiral RICHARDSON. Ma'am, thank you for the question. And consistent with the report that I provide to Congress on our views of the use of low-enriched uranium for naval reactor cores, I have got a copy here, currently, if we were to with today's technology employ low-enriched uranium, that would just, because of the reduction in energy density, that would just require more refueling of our reactors.

Specifically, I think the only application that we could conceive of right now is in an aircraft carrier, because you have more size to work with on an aircraft carrier. That additional refueling, just the refueling alone, would come at a cost of near a billion dollars and take years of operational availability out of that ship, because we have to bring it into the shipyard and refuel it instead of keep it at sea.

To develop the core that would go in there, that is an extremely complicated and technical matter. I would estimate that to qualify a core that could go in a nuclear-powered warship and survive the battle damage requirements for that core, I would say that we are talking near a decade of research and development and in the neighborhood of \$2 billion to get there.

We have done some initial exploratory types of looks at this type of technology. There are some potential ways ahead to get to a core that employs low-enriched uranium. Success is by no means guaranteed or assured in these efforts. And, again, we would have to be properly funded to even continue this exploration.

I will say that doing that and fitting an LEU core into a submarine would be extremely challenging just because of the footprint concerns.

Ms. ROYBAL-ALLARD. Okay. Thank you.

Mr. SIMPSON. Thank you.

Again, we have come to 10:30, and we have to be on the floor for the President of Afghanistan. So I appreciate, sincerely appreciate, your being here and your willingness over the last 3 months to come and meet with our committee and with me personally and update me with some of the briefings and stuff that we have had, and your willingness to make yourself available to committee members for the important work that you do.

And my wife is looking forward to having dinner with you and your wife when she gets out here.

Admiral RICHARDSON. Sounds great, sir.

Mr. SIMPSON. Again, thank you for your work and thank you for being here today.

Committee is adjourned.

QUESTIONS FOR THE RECORD
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
HOUSE COMMITTEE ON APPROPRIATIONS

**Hearing on the 2016 Budget Request for Naval Reactors and Defense
Nuclear Nonproliferation
Wednesday, March 25, 2015**

CHAIRMAN'S QUESTIONS**SECRETARY OF ENERGY ADVISORY BOARD TASK FORCE**

Chairman Simpson. Mr. Administrator, the Secretary has convened an advisory board for nuclear nonproliferation. The board published an interim report in August 2014 that found 1) the Department does not have a risk-informed analysis of priorities to guide its nonproliferation efforts and 2) the U.S. government does not yet have a compelling vision for the future of its nonproliferation efforts or how DOE's programs fit in that larger picture.

How does the nonproliferation budget request address the highest national security risks?

Administrator Klotz. Previously, each program office under DNN appropriation has applied rigorous internal risk assessment and prioritization approaches (including Intelligence Community assessments) to inform, develop, and provide the foundation for its fiscal year funding request. Although significant program-level coordination continues, the realignment of the NCTIR Program under the DNN appropriation, the reorganization of the Office of Defense Nuclear Nonproliferation, and the standup of NNSA's new Cost Estimating and Program Evaluation Office will now provide NNSA with a more integrated structure for program planning, budgeting, and evaluation as well as cross-program prioritization.

Chairman Simpson. Are there any interagency efforts ongoing to create the vision that's needed for the nonproliferation programs government-wide?

Administrator Klotz. NNSA participates in whole-of-government policy and program coordination processes to ensure that NNSA activities are aligned and integrated with broad U.S. national priorities and capabilities. NNSA, working particularly with the Departments of State and Defense, has been central to U.S. efforts to develop and implement domestic and international programs and strategies to meet the enduring and evolving challenges to the global nuclear security environment.

Chairman Simpson. Have you developed a risk-informed analysis of priorities to guide the formulation of your budget request? How might this kind of analysis improve your efforts?

Administrator Klotz. As recommended by the SEAB's Task Force on Nuclear Nonproliferation, NNSA recently released a new report—the *Prevent, Counter, and Respond—A Strategic Plan to Reduce Global Nuclear Threats (FY 2016–FY 2020)*—which articulates for the first time, in a single document, our programs to reduce the threat of nuclear proliferation and nuclear terrorism.

Over the next five years, NNSA will adapt the prevent-counter-respond mission objectives to address emerging global nuclear trends and evolving threats. Based on the current understanding of the threat environment, each program section of this report includes Future Plans and Key Program Milestones for the FY 2016 to FY 2020 period.

NR FUNDING BELOW THE BUDGET REQUEST

Chairman Simpson. Admiral, even though overall funding for Naval Reactors has been increased 31% over the past five-years, this amount is short of the total amounts requested for your program in each of those years. To meet those differences between planned increases and actual funding levels, Naval Reactors has had to defer many of its planned activities and even transferred funds from the Navy under the Economy Act in 2014. To understand the long-term impacts to your program, the Committee directed Naval Reactors to conduct a comprehensive budget review this year.

How has the Naval Reactors program coped with the funding levels provided over the past several years?

Admiral Richardson. In recent years, Naval Reactors' budgets have grown significantly as a result of increased national security requirements that include development of the OHIO-class Replacement reactor core, the refueling and overhaul of the land-based prototype, and recapitalization of the spent fuel handling infrastructure in Idaho. These high priority projects are on top of Naval Reactors' day-to-day mission: support of the nation's nuclear-powered Fleet. That mission has remained constant even as funding for these essential base operations have been reduced by more than \$600M over the past six years. These reduced funding levels have substantially impacted recapitalization of the spent fuel handling infrastructure, advanced technology development, and maintenance on prototype reactors, facilities and infrastructure. The following are specific examples of these impacts:

Recapitalization of the naval nuclear spent fuel handling capability has been delayed by over five years. This delay has increased the project cost by more than \$400M. As well, to manage the delay without affecting aircraft carrier schedules, the Navy had to procure additional, otherwise unnecessary spent fuel shipping containers at a cost of approximately \$500M. Because of the aging condition of the current facility, these delays also increase the risk that the current capabilities fail and we are unable to support the Navy's refueling schedule or conduct the research required to resolve important technical issues in the operating fleet.

Advanced technology development has been drastically reduced. Today, it is possible to design a life-of-ship core for the OHIO-Class Replacement, saving the Nation over \$40B, because of past technology development.

Other leaps in stealth, though funded by the Navy, and operational technologies such as electric drive and the new cladding material for the life-of-the-ship reactor, give our ships an enormous advantage over our adversaries. This work must be restored in order to maintain tactical superiority over our adversaries of the future and to attract and maintain the crucial engineering and scientific talent needed to successfully complete the mission.

Maintenance and replacement of the Program's aging laboratory facilities and infrastructure has been delayed. Many of these facilities date from the dawn of the atomic age and are vital to support the nuclear-powered Fleet. In total, over 40 General Plant Projects and 4 Major Construction Projects have been delayed or canceled. In addition, funding reductions have resulted in the deferral of critical infrastructure maintenance resulting in significant failures and restriction of NR's ability to manage the impact of emergent work as the existing infrastructure continues to age. Examples include:

Bettis High Power Transformer (Failed in 2014)

Bettis Acoustic Testing Generator (Failures over 2009 to 2011)

NRF Storm Drain System (Failed in 2014)

NRF Prototype Facilities (Roof failed in 2014)

KAPL Water Main (Repeated Failures since 2004, approx. 3-4 per year)

Bettis Spring Water Intercept System (Failed in 2011 and 2013)

Bettis Materials Evaluation Laboratory (Legacy Radioactive Contamination)

Chairman Simpson. Are any additional Economy Act Transfers from the Navy planned or was this a one-time occurrence?

Admiral Richardson. The FY16 President's Budget fully supports NR's requirements; therefore, no additional Economy Act Transfers from the Navy are planned.

LIFECYCLE COST ESTIMATE FOR MOX

Chairman Simpson. Mr. Administrator, DOE and NNSA are moving forward to meet the direction from this Subcommittee to submit an independently-verified lifecycle cost estimate for the MOX and downblending options of the plutonium disposition program. This estimate is due next month. There was also related direction to the Department in the National Defense Authorization Act which is due in September.

Are you aware of any errors or shortcomings in the report you submitted last spring, which analyzed five alternatives?

Administrator Klotz. The April 2014 options analysis used the best available data as of the date of the report. Although the options report identified high level programmatic risks or concerns, it did not attempt to quantify these risks. Recognizing this, as part of the congressionally-mandated assessment and validation of the April 2014 lifecycle cost estimates, NNSA also tasked the contractor to quantify these risks in their assessment.

Chairman Simpson. How did or will you weigh political and practical risks with alternatives to MOX?

Administrator Klotz. Risks related to all plutonium disposition options are identified in the April 2014 options analysis as concerns and described in the key points of the report. The report did not quantify these risks and so as part of the congressionally mandated assessment and validation of the April 2014 lifecycle cost estimates, NNSA also tasked the contractor to quantify these risks in its assessment.

Chairman Simpson. Should the lowest total lifecycle cost option be the primary criteria for selecting an alternative? With the shutdown, is it even feasible to propose these materials go to the Waste Isolation Pilot plant?

Administrator Klotz. The lifecycle cost is one of the criteria which will be used to select an option. Examples of other criteria will include whether the option is executable within a reasonable timeline and whether it allows the U.S. to meet its international commitments.

In order to accommodate the additional waste volume expected from the 34 metric tons of Pu, there would need to be changes to the transuranic waste limitations in Section 7 of the WIPP Land Withdrawal Act. Should the legislative limits be amended, we would need to analyze the impacts of those revised limits and submit a revised certification application to the U.S. EPA for consideration. We would also likely need to revise regulatory permits with the State of New Mexico.

The current plan for recovery of the WIPP is to begin initial disposal operation in 2016 and resume full operations in the 2018 timeframe, but DOE will only resume operations when it is safe to do so. The Department's priorities include recovery of WIPP and restoration of operations for its congressionally mandated mission of safely disposing of defense-generated transuranic waste. It would be difficult to predict when any new inventory could be accommodated until after WIPP disposal operations begin and the rate of disposal of transuranic waste is better understood.

Chairman Simpson. Will the Department select a preferred alternative after concluding these Congressionally-directed items? If not, how much longer do you need to make a decision?

Administrator Klotz. The congressionally mandated assessment and validation is expected to be completed in FY 2015. This independent validation will inform the final policy decision on what disposition path the United States Government will adopt in compliance with the Plutonium Management and Disposition Agreement (PMDA).

10 CFR PART 810 EXPORT CONTROL OF NUCLEAR TECHNOLOGIES

Chairman Simpson. Ms. Harrington, in February, DOE issued a final Part 810 rule, the regulation governing the export of nuclear technologies. A chief concern of the regulated community is the slow and inefficient process through which it has been administered. This slow process puts U.S. firms at a competitive disadvantage to nuclear exporters from other countries, diminishes U.S. influence on nuclear safety, security and nonproliferation norms, and ultimately costs American jobs. Though many of the concerns identified by industry were not addressed in the final rule, the NNSA has provided strong assurances that it would remedy its inefficient licensing approval process through a Process Improvement Program (PIP).

How is the NNSA improving its processes and how much of this budget request will go towards achieving meaningful improvements?

Ms. Harrington. As part of our ongoing Process Improvement Plan (PIP), NNSA is working to identify gaps, overlaps, and inefficiencies in the Part 810 authorization process. This effort aims to reduce the amount of time required to process an export request application, while maintaining the strongest nuclear nonproliferation controls in the interest of U.S. national security. NNSA has contracted a group of industry experts to conduct a comprehensive study that will result in a report and set of recommendations for improvement. This study will include interviews with all relevant stakeholders impacted by Part 810 including DOE/NNSA staff, the U.S. interagency, industry, and non-governmental organizations. In addition, NNSA is in the process of developing an electronic processing system ("e810 system") and case management web portal for Part 810 applications. This portal will: (1) help make the Part 810 process ISO 9001 compliant by developing a records management function; (2) make the Part 810 application process easier for applicants to complete; (3) align with industry's request for Part 810 procedural reforms; (4) increase transparency into the application process, to provide more insight into the status of each application throughout the review; (5) shorten the processing time for Part 810 authorizations; and (6) enable NNSA to monitor performance against new target processing times for each stage of the Part 810 process.

Chairman Simpson. What is the average processing time for a typical application and why didn't the final rule establish any time limits on NNSA for the processing of applications?

Ms. Harrington. The average processing can vary from thirty days to several years, depending on the end destination. The most significant processing delays are caused by lack of response from foreign governments to the requirement for written nonproliferation assurances. While the U.S. Government cannot control how long a foreign government takes to provide those assurances, NNSA has initiated discussions with governments to streamline the assurance process, where possible. NNSA received comments during the rulemaking public comment period that deadlines be considered; however, the decision was made that this would not be appropriate given that this is an interagency process that relies on foreign governments to provide government-to-government nonproliferation assurances prior to Department of State concurrence. Given that NNSA does not have the ability to ensure foreign governments provide those assurances in a timely manner, it would have not been possible to include realistic deadlines for application processing. In a report issued in December of 2014, the Government Accountability Office (GAO) concluded that based on the foreign government assurances, it would not be appropriate to include firm deadlines.

Chairman Simpson. Effective implementation of the PIP is vital to U.S. competitiveness. What are the implementation schedules for the PIP and what metrics are you using to track its success?

Ms. Harrington. NNSA is performing a quantitative analysis as a part of a Six Sigma-based process, to improve the quality of process outputs by identifying and removing the causes of defects (errors) and minimizing variability in business processes. NNSA as a whole and the Part 810 team specifically, is working towards ISO 9001 compliance. ISO 9000 is a series of standards, developed and published by the International Organization for Standardization (ISO), that define, establish, and maintain an effective quality assurance system for manufacturing and service industries. Based upon the outcome of a quantitative analysis of the current Part 810 authorization process, NNSA will incorporate, where possible, those efficiencies into the process. DOE anticipates releasing e810 in three stages: first (and most significant) is to go public with the new system no

later than July 2015; and second, we anticipate completing the PIP study and becoming ISO compliant by the end of this calendar year.

ADVANCED TEST REACTOR AT IDAHO NATIONAL LAB

Chairman Simpson. Admiral, the Advanced Test Reactor serves an important role for our nuclear navy, as well as for civilian nuclear energy research and development. The ATR is an aging reactor that will require investment to keep it operating into the future. The Office of Nuclear Energy has been working with Naval Reactors to develop a plan to address those needs, but you haven't reached a mutual agreement on those needs.

What is the status of the joint planning effort and what is causing the delay? What is holding things up exactly?

Admiral Richardson. NR and the Office of Nuclear Energy (NE) have engaged in a thorough and deliberative process at both the staff and principal levels. This summer, a joint strategy is being developed to maintain the long-term health of the ATR. Ample time is available to implement this strategy during the FY17 Budget process.

Chairman Simpson. What is your assessment of the status of maintenance and operations at ATR? Is the facility in a position to support NR's needs for the foreseeable future?

Admiral Richardson. NR, together with NE will work to address reliability with a fully resourced, multi-year plan that enables the ATR to support NR's needs for the foreseeable future.

COST ESTIMATE OF THE SPENT FUEL RECAPITALIZATION

Chairman Simpson. Admiral, the Energy and Water bill carries a provision each year which requires that all projects with a total project cost of greater than \$100 million have an independent cost estimate. I understand that NR follows a slightly different project management process than the rest of the department. The current cost range for the Spent Fuel Recapitalization tops out at about \$1.4 billion, which is about \$400 million more than the original cost range approved in 2008. It is possible that there will be additional costs due to delays in funding since 2008.

What is the current estimated cost of this project and what are the main risks to keeping those costs from rising further?

Admiral Richardson. The Spent Fuel Handling Recapitalization Project currently has an estimated total project cost, including other project costs, of \$1.65B. Critical Decision-1 was recently completed and the work is continuing to move forward along our established project schedule. With the Spent Fuel Handling Recapitalization Project, as with all other Major Construction Projects (MCPs), NR uses Implementation Bulletin 413.3-109 Revision 3, which is consistent with DOE Order 413.3B.

The original Spent Fuel Handling Recapitalization Project plan included a project duration of 10 years and a total project cost estimate of \$1.249B. Due to funding restrictions since FY12, the project has been extended nearly six years, resulting in a project cost increase of approximately \$400M. The increased cost resulted from escalation due to these delays and inefficiencies and rework associated with the unstable funding environment, which has required de-staffing and re-staffing of the project multiple times.

Further, the estimated total project cost of the Spent Fuel Handling Recapitalization Project does not account for the additional M-290 shipping containers that the Navy will need to procure for temporary storage of naval spent nuclear fuel until the new spent fuel handling facility becomes operational. Procurement of these additional shipping containers is only necessary because the project has been delayed, as discussed above. To support aircraft carrier refueling schedules, the Navy will need to procure these containers at a total cost of approximately \$500M.

The main risk of further cost increases to the Spent Fuel Handling Recapitalization Project is a lack of funding stability. One could expect increases similar to those described above if the project is not funded sufficiently to meet the current schedule. Further delays to the project would also incur costs for additional spent fuel shipping containers that would be borne by the Navy.

Chairman Simpson. When do you expect to provide the Subcommittee with an independent cost estimate for this project?

Admiral Richardson. Consistent with DOE Order 413.3B, *Program and Project Management for the Acquisition of Capital Assets*, an independent cost estimate will be completed as part of Critical Decision – 2, *Performance Baseline*, which is currently scheduled for the first quarter of FY 2018.

Chairman Simpson. Within NR's budget, where do you prioritize funding for this recapitalization and why?

Admiral Richardson. All of NR's budget supports the safe and effective operation of the nuclear-powered Fleet, today and tomorrow.

The main components that support today's operating fleet are Naval Reactors Operations and Infrastructure (NOI), Naval Reactors Development (NRD), Program Direction and Construction. The remainder of the budget, primarily OHIO-Class Replacement Reactor Systems Development, S8G Prototype Refueling and the Spent Fuel Handling Recapitalization Project, supports tomorrow's fleet.

All of NR's funding requests can be directly linked to this single, overarching priority of supporting the safe and effective operation of the nuclear-powered fleet. This priority will be met in the most effective and judicious way possible.

NAVAL REACTORS**OHIO-REPLACEMENT**

Subcommittee. Admiral, the Navy is facing serious challenges to fund its shipbuilding budget as a result of the very expensive Ohio-Replacement ballistic missile submarine.

Has the Naval Reactors development of the reactor plant experienced any problems or setbacks?

Admiral Richardson. Progress to date provides confidence that the Navy's construction schedule for the lead ship will be on track. Much work remains to be done, but there is a solid plan to deliver the OHIO-Class Replacement on time and on budget.

NR is advancing the design of the propulsion plant on the schedule laid out in 2010. The only change to the original schedule stems from the Navy's decision to delay construction of the first ship from FY19 to FY21; NR adjusted the propulsion plant development timeline to maintain synchronicity with the Navy, following the schedule shift.

Specific to the reactor plant, the major engineering challenge moving forward is the manufacturability of the new cladding material for the life-of-the-ship reactor. NR is focused on ensuring that this technology delivers to support placing reactor plant procurement contracts in FY19.

Subcommittee. Development work was delayed by two years once before. Do you believe there will be further delays to the NR program as the Navy struggles with its funding plans?

Admiral Richardson. The OHIO-Class Replacement is the Navy's top shipbuilding priority. NR will maintain the schedule for the development of the propulsion plant to meet the Navy's requirement to begin procurement of long-lead materials in FY19 to support a construction start in FY21.

NEW SUBMARINE DEVELOPMENT

Subcommittee. Admiral, the Ohio-replacement ballistic missile submarine will incorporate a number of important advancements, some of which we cannot talk about in this venue and some that we can. Those advancements are important for our national defense, but they come at a cost.

How is the Navy balancing the need for technology advancements with the high cost of this program?

Admiral Richardson. The Navy thoroughly examined the capability requirements for this class and consciously selected the ship design that would minimize the cost and risk to meet those requirements, including needed technology advancements.

All of the technologies being developed for the OHIO-Class Replacement are needed to meet the operational requirements of the ship, which will operate past 2080. During the development of these requirements, the Navy conducted trade-off studies to minimize costs while meeting operational requirements. As part of these studies, the maturity of technology needed to meet operational requirements was specifically assessed. Operational mitigations were employed to the maximum extent practical to address capability requirements to avoid the cost of design changes. Additionally, decades of technology development investments were harvested to maximize technology maturity and minimize cost. For example, both electric drive propulsion and life-of-the-ship reactor design efforts are capitalizing on the development efforts invested in maturing these technologies long before they were selected for insertion into the OHIO-Class Replacement design. The Navy continues to focus on the most cost effective means to meet operational requirements.

Subcommittee. Was a cost capability analysis ever conducted for this program and could such analysis be useful for future programs?

Admiral Richardson. The Department of Defense's Office of Cost and Program Evaluation (CAPE) and Naval Center for Cost Analysis (NCCA) conducted an independent analysis and validated both the Navy's overall budget and NR's (Navy) specific plans in 2010 in support of Milestone A. An additional review in 2012 by CAPE, OMB, and NNSA re-validated NR's

DOE efforts supporting the OHIO-Class Replacement. The Navy continues to assess cost and capability to ensure that the OHIO-Class Replacement Program delivers needed capability at least cost.

Subcommittee. What is the total cost for the development of the life of the ship core and will this design result in real savings? What is your estimate of those savings?

Admiral Richardson. Of the \$1.7B development costs for the reactor plant design, the total cost for development of the life-of-ship core is \$659M.

The life-of-ship core eliminates the need for a mid-life refueling and, coupled with other maintenance improvements planned for the OHIO-Class Replacement, reduces the time required for the midlife maintenance period. These advantages enable the Navy to meet deterrence requirements with two fewer SSBNs than the current OHIO-Class, saving over \$40B in acquisition and operational and sustainment costs.

CHEATING SCANDAL

Subcommittee. Admiral, last year, Naval Reactors was embroiled in a cheating scandal where it was discovered that that dozens of personnel in the nuclear navy had viewed a leaked training exam at some point over the past year and did not report it.

What have you done over the past year to prevent such events from happening again in the future?

Admiral Richardson. On 3 February 2014, a Sailor assigned to the Moored Training Ship (MTS 626) at the Nuclear Power Training Unit (NPTU) in Charleston, South Carolina reported that an examination key was compromised. The examination key that was compromised was for one of the staff certification examinations for one of the eleven watch station positions at one of the two Moored Training Ships on the Charleston site.

Our work over the past year has centered on three main lines of effort: addressing the misconduct, improving exam security, and systemically looking at the culture of my Program.

1) The first line of effort started with an immediate assessment to verify that the reactors were being operated safely. I also immediately initiated a JAGMAN investigation to determine the full extent of the issue at NPTU and determine what accountability actions should be taken. After interviewing more than 800 personnel, including all personnel currently assigned to the Nuclear Power Training Unit (NPTU) Charleston and all personnel since 2004 who have completed the written staff certification examination for the Engineering Watch Supervisor watchstation (EWS exam), the investigation determined that 39 personnel over the past seven years had been involved in the compromise of the EWS exam on some level. These personnel were held accountable.

The investigation examined additional areas and found no evidence of cheating in any other staff qualification examinations at Moored Training Ship (MTS) 626 or any cheating at MTS-635, the other prototype at NPTU Charleston.

2) The second line of effort included a thorough review of the exam security posture across all NNPP sites in order to ensure that we have implemented

best practices in exam security across the NNPP which enacted stronger administrative and technological measures to improve the preparation, security, and administration of training and qualification exams.

3) The third and most extensive line of effort was a cultural assessment of the Naval Nuclear Propulsion Program. Following the exam cheating incident at NPTU Charleston, the Naval Nuclear Propulsion Program took an in-depth look at the culture of integrity across the Program – both at its nuclear training commands and across the nuclear fleet.

The analysis focused not only on the first-order cheating incident at the training command, but also on other cultural factors within the Program that could potentially lead to erosion in the motivation and high performance standards in all areas, including integrity.

Analysis of the cultural factors included the conduct of the training programs, managing Sailor's time and workload, the Program's methods for assessing performance, and other issues that can create a pressurized and unsustainable environment that can lead to lowered performance and, in the worst cases, possibly contribute to cheating and dishonesty.

This review included close consultation with leading experts in the public and private sector on ethics in the workplace.

The follow up actions to the review continue to be implemented, but the list below provides a summary of the actions that have been taken to date based on the cultural assessment.

I hosted a first-ever fleet leadership summit at NR Headquarters to explore the work and integrity climate in the fleet.

I gave training and conducted town-hall events to all personnel at Nuclear Power School and the Naval Nuclear Prototypes.

I implemented several initiatives at the nuclear training commands to address workload and quality of life issues to include:

A review of the external requirements at the nuclear training commands that add workload without significantly impacting training effectiveness. To date, 68 requirements have been removed, 50 more recommendations are

under review, and requirements documents have shifted focus to principles-based discussions vice specific direction on how to accomplish the training mission. Internal command reviews are continuing to identify further opportunities to reduce the workload burden.

Implementation of limits on student class sizes at the nuclear prototypes based on the number of qualified watchstanders at each command to limit the work hours and improve the quality of life for the staff.

Implementation of structural changes to maintenance planning and execution at the nuclear prototypes, improving efficiency of maintenance completion and removing the burden of maintenance performance by instructors so that they can focus on the mission of training students.

I gave training for waterfront officers and chief petty officers in the Nuclear Powered Warship Fleet concentration areas, focusing on leadership's role to establish and maintain a climate of sustainable excellence, including maintaining high standards of integrity. Training has already been completed at most of the major fleet concentration areas and will continue throughout the year.

I provided training to the Naval War College Command Course for Major Commanders, Commanding Officers, Executive Officers, and Command Master Chiefs four times over the past year. I also personally provided training to each Prospective Commanding Officer of nuclear powered warships over the past year.

I spoke at the Navy Four star symposium, and the Submarine Flag Officers and Major Commander Training Symposia on this topic.

I am holding continuing forums with NR Headquarters senior technical and program managers to assess and identify methods to improve integrity culture across the Program. Discussions have focused on actions needed to ascertain problem areas in order to affect prompt and meaningful improvements across the Program.

NR Senior Executives are leading training sessions at Norfolk and Puget Sound Naval Shipyards with managers on NNPP principles. Six sessions have been completed with over 180 managers as of 26 February 2015. Additional sessions are planned. These sessions focus on leadership

development of shipyard middle level and senior managers to reinforce NNPP values and expected behaviors in the planning, conduct, and oversight of nuclear work. The key principles of integrity, critical self-assessment, and continuous improvement are highlighted through a review of lessons learned from over 60 years of Program experience building, maintaining, and operating nuclear powered warships.

I held training for more than 1800 personnel, including Commanding Officers and leadership in the Nuclear Fleet and at the Shipyards over the past year. These events have provided tremendous insights into the factors that are affecting the ability to achieve and maintain excellence in the Nuclear Navy. I have distilled these insights and will provide personal guidance to all Commanding Officers about behaviors for sustaining excellence in the Program and will implement changes to current feedback mechanisms including Operational Reactor Safeguards Examinations, Incident Reporting requirements, and reports from Commanding Officers in order to better assess the integrity culture in the nuclear fleet.

I am closely coordinating with the President of the Naval War College to share lessons that the NNPP is learning in implementing their program to enhance integrity in the NNPP. These lessons are being adopted, as applicable, for broader Navy use in the Navy Leadership and Ethic Center.

Subcommittee. What did you find to be the root causes of these circumstances and do you believe they have been addressed?

Admiral Richardson. Based on my discussions with Sailors and the Navy Leadership, I believe that the corrective actions we are implementing are starting to have a positive effect on the issues we have found. Those issues included misperceived consequences of failure that created excessive pressure to perform, along with inadequate security and administration procedures for that particular exam. Building a stronger culture of integrity in the Naval Nuclear Propulsion Program is a long-term effort and I am committed to maintaining it as a priority throughout my tenure as Director of NR.

IDAHO SPENT FUEL

Subcommittee. Admiral, the state of Idaho has terminated spent fuel shipments for nonproliferation and there are challenges to gaining support for transporting research quantities in support of nuclear energy programs. The spent fuel recapitalization project is being designed to support Navy spent fuel in Idaho for at least the next 40 years.

Has the state reviewed your plans for recapitalization of the spent fuel infrastructure and have they expressed any concerns?

Admiral Richardson. NR has engaged with the State of Idaho throughout the process to date and will continue to do so moving forward. No concerns have been identified.

Subcommittee. Are there any limitations on the Navy program at this time?

Admiral Richardson. No. Today, the agreement with the State of Idaho enables NR to complete all tasks required to support the nuclear-powered fleet.

Subcommittee. There has been discussion of renegotiating the Settlement Agreement to clarify the Department's responsibilities regarding the 2035 date when all spent fuel is supposed to be removed from Idaho. Would the Naval Reactors program benefit from participating in these discussions and having greater clarity on the expectations for Navy spent fuel?

Admiral Richardson. Based on the 2008 Addendum to the 1995 Settlement Agreement, NR can continue naval spent nuclear fuel operations in Idaho beyond 2035 with limitations on the total amount of naval spent nuclear fuel in Idaho at any given time. However, without a geologic repository or interim storage site able to receive the current inventory of spent fuel, NR would be unable to meet all of our requirements under the current agreement.

NR looks forward to continuing to work with its partners in Idaho to ensure the safe support of the nuclear-powered fleet while protecting the people and environment in Idaho.

DEFENSE NUCLEAR NONPROLIFERATION**TOPLINE FUNDING LEVELS**

Subcommittee. Ms. Harrington, for the last several years, the topline budget request for Nonproliferation activities has declined. This year, your budget request proposes to increase overall funds for the appropriation as well as core nonproliferation activities that have traditionally been funded by the Office of Defense Nuclear Nonproliferation.

How are you changing your programmatic strategies and goals in this budget request?

Ms. Harrington. The FY 2016 Defense Nuclear Nonproliferation (DNN) budget request supports key priorities of two programs – Defense Nuclear Nonproliferation (DNN) and Counter Terrorism and Incident Response (NCTIR):

Continues to focus on the minimization, management and security of nuclear and radiological materials as the critical element of weapons and improvised devices, following the accelerated four-year effort activities.

Reduces the risk of nuclear and radiological material trafficking and builds necessary global nuclear forensics capabilities.

Provides IAEA with critical mission support and strengthens international nuclear safeguards system.

Provides funding to address urgent emerging threats in unstable regions, particularly the Middle East.

Advances satellite payload activities that support treaty monitoring and military missions.

Sustains nine Stabilization cities including providing technical equipment and training.

Continues Emergency Communications Network Suite upgrades to maintain state-of-the-art capabilities.

Subcommittee. Your programs are in competition with other important defense programs. What are these increases for and how are they contributing to our nation's defense posture?

Ms. Harrington. The FY 2016 DNN request is \$1.9 billion, an increase of \$325 million or 20% from the FY 2015 enacted level. The funding increase is due to:

The proposed transfer of the renamed NCTIR Program and the Counterterrorism and Counterproliferation (CTCP) Program from the Weapons Activities appropriation.

The technical activities previously executed under the CTCP Program will be restructured into DNN R&D and the renamed NCTIR.

Activities associated with the removal of HEU from third countries, including Japan.

This funding increase will contribute to our nation's defense posture by ensuring a comprehensive response to the prevention of nuclear proliferation and terrorism, which are among the top U.S. national security policy priorities in the *2015 National Security Strategy*, *2010 Nuclear Posture Review* and the *2011 National Strategy for Counterterrorism*.

BUDGET STRUCTURE CHANGES

Subcommittee. Mr. Administrator, the budget request again proposes to move counter-terrorism and emergency response activities to nonproliferation from weapons.

Why do you believe these activities are better aligned with the Nonproliferation programs?

How do they contribute to the advancement of US nonproliferation goals?

Administrator Klotz. This move aligns all NNSA funding for preventing, countering, and responding to global nuclear dangers in one appropriation; strengthens existing collaborations and shared tasks between the two mission areas; and clarifies total funding and work scope dedicated to counterterrorism.

This restructuring will also help advance US nonproliferation goals by providing NNSA with a more integrated structure for planning and cross-program prioritization of its actions across the entire nuclear threat spectrum, so as to:

Prevent non-state actors and additional countries from developing nuclear weapons or acquiring weapons-usable nuclear materials, equipment, technology, and expertise; and prevent non-state actors from acquiring radiological materials for a radiological threat device;

Counter the efforts of both proliferant states and non-state actors to steal, acquire, develop, disseminate, transport, or deliver the materials, expertise, or components necessary for a nuclear or radiological threat device or the devices themselves, and;

Respond to nuclear or radiological terrorist acts, or accidental/unintentional incidents, by searching for and rendering safe threat devices, components, and/or radiological and nuclear materials, and by conducting consequence management actions following an event to save lives, protect property and the environment, and enable the provision of emergency services.

BUDGET STRUCTURE CHANGES

Subcommittee. Ms. Harrington, the budget request for Defense Nuclear Nonproliferation includes several changes to the budget structure. Notably, prominent activities like the Global Threat Reduction Initiative (GTRI) are no longer budget lines and the Nuclear Counterterrorism Incident Response program is shifted from Weapons Activities.

Why does the request eliminate GTRI and how do the overall amounts requested according to the new budget structure compare to amounts appropriated in fiscal year 2015?

Which programs are seeing the largest changes as a result of this reorganization and budget request?

Ms. Harrington. DNN's realignment plan was implemented following extensive analysis and consultations that began with the 2012 DNN "Over the Horizon" (OTH) study. This new structure aligns with DNN's core competencies: Global Material Security; Material Management and Minimization (M³); Nonproliferation and Arms Control; and Defense Nuclear Nonproliferation Research and Development (DNN R&D). This new structure does not eliminate any existing programs or affect program office budgets. On a comparable basis, the Request reflects a change of \$75M (\$101M including the effects of the FY 2015 rescissions). This includes an increase of \$10M for Nuclear Counterterrorism Incident Response and roughly \$65M in M³ and DNN R&D. If the GTRI program had not been split into two programs, the FY 2016 budget request would have represented an increase of \$57 million from the FY 2015 enacted level.

By organizing DNN functionally and creating synergy among like sub-programs, the realignment will better position DNN to meet current, enduring, and evolving threats, and allow DNN to allocate resources more effectively to address the full spectrum of nuclear security challenges.

2014 NUCLEAR SECURITY SUMMIT

Subcommittee. Mr. Administrator, the United States committed to several outcomes at the 2014 Nuclear Security Summit, which was held last March.

What were the outcomes of the 2014 Nuclear Security Summit and what parts of the NNSA budget request will support the commitments that were made?

Administrator Klotz. Major accomplishments of the 2014 Hague Summit included announcements by Belgium and Italy that they completed the removal of their supplies of highly-enriched uranium and plutonium, and Japan announcing that it would work with the United States to eliminate hundreds of kilograms of weapons-usable nuclear material from one of their experimental reactors, which would be enough for a dozen nuclear weapons. NNSA is the lead in these significant steps toward permanent threat reduction. In the Hague, 35 nations agreed to a joint initiative on strengthening nuclear security implementation, which includes NNSA projects in the areas of technical security cooperation with other countries, peer reviews, support for International Atomic Energy Agency (IAEA) programs, training and education, information exchanges, strengthening cyber security, maintaining emergency response and preparedness capabilities, and pursuing research and development on nuclear security technologies. NNSA has ongoing activities to support and implement Nuclear Security Summit commitments in 35 countries and has completed Summit commitments in additional countries. These programs derive from the outcomes of the 2010, 2012 and 2014 Summits.

Subcommittee. The Ukraine crisis largely overshadowed the talks. How have the events in Crimea and Ukraine had an impact on U.S. nonproliferation goals over the past year?

Administrator Klotz. Ukraine is one example of DNN's ability to be flexible in its response to emerging events. The Ukrainian Border Guards (BG) asked for assistance to mitigate challenges to its ability to monitor borders and prevent nuclear smuggling following Russia's aggressive actions in 2014. NNSA coordinated with the Departments of State and Defense, as well as with the Nuclear Regulatory Commission and the Global Partnership to develop a response.

The situation in Ukraine has also accelerated the transition of the nuclear security relationship in Russia.

NUCLEAR FUEL FOR UKRAINE

Subcommittee. Ms. Harrington, the United States previously advocated for the establishment of an international nuclear fuel bank, to provide peaceful access to nuclear energy and to prevent the proliferation of uranium enrichment capabilities. The basic fear was that developing states might be politically cut off from their nuclear fuel supplies and would therefore feel the need to have their own indigenous enrichment capabilities. The United States previously offered \$50 million for such efforts back in 2009, but not much has been done for several years. Ukraine is now in the situation where their nuclear fuel supplies are endangered due to political issues with Russia. Nuclear power supplies nearly 50% of Ukraine's electricity needs.

Is there anything that DOE is doing or could be doing for Ukraine's nuclear fuel issues and their reliance on Russia for nuclear fuel?

Ms. Harrington. Ukraine has in the past been completely reliant on Russia for fuel for its nuclear reactors. This lack of diversity continues to be of particular concern since nuclear energy provides more than half of Ukraine's electricity. The Ukraine Nuclear Fuel Qualification Program (UNFQP), supported by the Department of Energy's Office of Nuclear Energy (NE), was initiated in response to a request from the Government of Ukraine in the late 1990s to help diversify fuel supply in Ukraine. The U.S. Government chose Westinghouse to implement UNFQP, and U.S. national laboratory personnel, Ukrainian technical experts, and Westinghouse began working together to design fuel that could power a Soviet-design VVER 1000 reactor, co-resident with Russian fuel. In 2005, the first lead test assemblies were delivered to Ukraine's South Ukraine Nuclear Power Plant (SUNPP) to begin a five-year cycle to qualify the fuel. Qualification, generally a regulatory function, is the first step toward licensing.

In December 2014, Ukraine's government, acting in response to other fuel disruptions (gas, coal) from Russia, modified its contract with Westinghouse to include the options for at least seven more reactors - about half of the fifteen reactors in Ukrainian's fleet. Although Westinghouse is moving forward to provide this needed supply, Ukraine lacks needed financing mechanisms.

Since September 2014, DOE has led an international effort (with Canada and the European Union) advising Ukraine in the development of a national energy contingency plan to address all forms of energy shortages, including nuclear, gas, coal and electricity, as well as to offer ideas for energy efficiency. DOE's laboratory personnel are working with Energoatom to develop emergency operating procedures in the event that electricity is unavailable for a longer period.

Subcommittee. Should the U.S. be moving forward with a nuclear fuel bank to help out Ukraine and other countries that might be in the same predicament in the future?

Ms. Harrington. The United States currently has a nuclear fuel bank that was started in 2005, when the Secretary of Energy announced that the U.S. Department of Energy (DOE) would set aside 17.4 metric tons of surplus highly enriched uranium (HEU) to be down blended to low enriched uranium (LEU) and held in reserve to address potential disruptions in the nuclear fuel supply of eligible foreign countries that meet certain nonproliferation criteria. The American Assured Fuel Supply (AAFS) created a DOE reserve of LEU as part of a broader framework of nonproliferation efforts to provide confidence in fuel supply and discourage the unnecessary development of enrichment capability. The AAFS allows the United States to assure the supply of LEU to countries that meet certain nonproliferation criteria in the event of a commercial LEU supply disruption. The United States has a nuclear cooperation agreement in force with Ukraine that would permit the export of LEU to that country. Were Ukraine to face a situation in which it was cut off from the commercial market to supply nuclear fuel to power its nuclear reactors, U.S. vendors could submit requests for release of the fuel from the AAFS to help meet Ukraine's fuel supply needs.

DOE has also contributed almost \$50 Million to the International Atomic Energy Agency (IAEA) to help create a LEU Fuel Bank, which is planned to be located in Kazakhstan. The IAEA Fuel Bank was conceived as a mechanism to assure LEU supply, and will be a physical stock of LEU under IAEA control and in its legal possession. The IAEA Fuel Bank could conceivably be an option to supply Ukraine with fuel at some point in the future, however, it will not be operational for at least another two years, while the IAEA and Kazakhstan upgrade the safety and security of the building that will house the Bank.

DOMESTIC MOLY-99 PRODUCTION

Subcommittee. Ms. Harrington, the Department has recently concluded a review of the GTRI Moly-99 program in 2014 in response to the American Medical Isotopes Production Act of 2012.

What is the NNSA's strategy to develop this capability and what are the total costs in this budget request within the HEU conversion program?

Ms. Harrington. NNSA has cooperative agreements with two domestic commercial entities to accelerate the development of three technical pathways to produce molybdenum-99 (Mo-99) in the United States without the use of highly enriched uranium (HEU): NorthStar Medical Radioisotopes (neutron capture technology and accelerator technology), and SHINE Medical Technologies (accelerator with low enriched uranium (LEU) fission technology). The cooperative agreements are implemented under a 50 percent - 50 percent cost-share arrangement, consistent with Section 3173(a)(1)(C) of the American Medical Isotopes Production Act of 2012, and are currently limited to a total of \$25 million of Government funding each. The NNSA Mo-99 program also funds work at a number of national laboratories to conduct public domain, non-proprietary, non-critical-path activities to help accelerate the development of non-HEU Mo-99 production technologies.

The Fiscal Year 2016 budget request in the HEU Conversion Program would allocate \$25 million toward the NNSA Mo-99 Program to continue its support to the domestic cooperative agreement projects and to fund ongoing work at the national laboratories to continue development of non-HEU Mo-99 production technologies.

Subcommittee. The DOE review indicated that the likelihood of a U.S. production capability might be significantly increased if NNSA were able to increase their cost share or if a government loan guarantee could be obtained. How are the costs currently being shared by industry and is NNSA advocating for a change in the cost share or for expanding the loan guarantee program?

Ms. Harrington. The American Medical Isotopes Production Act requires costs to be shared in accordance with Section 988 of the Energy Policy Act of 2005. Currently, DOE/NNSA cooperative agreements are

awarded on a 50% - 50% cost shared basis, though the Energy Policy Act of 2005 allows this to be changed if the Secretary, or the Secretary's designee, determines a reduction is necessary and appropriate. Options to improve DOE/NNSA support, including adjusting the cost share ratio, are currently being evaluated. The American Medical Isotopes Production Act does not give DOE/NNSA the authority to use loan guarantees as a mechanism for financial support to its domestic commercial partners.

Subcommittee. There are also advocates for other medical tests that would eliminate the need for Moly-99 entirely. While your program has focused on converting reactors, are we missing an opportunity to further diversify our needs away from uranium in any form?

Ms. Harrington. While some alternative medical procedures that do not use technetium-99m (Tc-99m), the decay product of Mo-99, can be used to diagnose patients, in many cases these tests provide inferior imaging, a higher radiation dose to patients and technicians, and higher costs. In other cases, there are no effective replacements for Tc-99m procedures. While some alternative modalities can be used in times of shortage, they are not expected to replace Tc-99m-based radiopharmaceuticals entirely.

There are ways Mo-99 can be produced without uranium at all. Under its technology-neutral program, NNSA has partnered with NorthStar Medical Radioisotopes to develop two different technical pathways that do not use any uranium in the production process.

REMOVING JAPANESE MATERIALS

Subcommittee. Ms. Harrington, the budget request contains approximately \$20 million to remove nuclear materials from the fast critical assembly in Japan. Japan is one of the world's largest economies with a GDP of almost five trillion dollars and arguably does not need U.S. taxpayer funds to pay for the storage and disposal of its nuclear materials.

Why is the NNSA requesting funding to pay for Japanese materials? Why isn't Japan paying the full cost of this agreement?

Ms. Harrington. Japan is slated to pay for the overwhelming majority of the Fast Critical Assembly (FCA) project – over 80% of total costs. When negotiating agreements with foreign countries, especially high income countries, NNSA always works to obtain the maximum possible financial commitment from our counterparts. Some U.S. funds are often required in order to implement a solution that results in the safest, most secure, and timely removal of weapons-usable material. The FCA material is among the most sensitive of any foreign material that NNSA has addressed, and removing it to the United States will be a significant national security achievement.

Subcommittee. Will the United States bear the cost of ultimately disposing of this material and where will these materials be shipped to in the United States for processing and storage?

Ms. Harrington. While the complete cost estimates are not yet finalized, Japan is expected to pay over \$90 million for disposition activities, which is projected to cover the majority of costs.

NNSA is evaluating potential disposition options and expects to finalize the location where these materials will be shipped within the next several months.

Subcommittee. Does the NNSA have agreements with other high income nations to transport their nuclear materials to the United States?

Ms. Harrington. Yes, NNSA has plans to remove weapons-usable highly enriched uranium (HEU) and/or plutonium from several high income nations in Europe.

Subcommittee. Do you intend to ask Congress to extend the foreign reactor fuel removal program beyond its current sunset date of 2019 to support these and other agreements that may be in the works?

Ms. Harrington. No. Currently, NNSA does not plan to further extend the Foreign Research Reactor Spent Nuclear Fuel Acceptance Program, and we do not foresee the need for such an extension in the future unless merited by a clear nonproliferation justification.

COOPERATION WITH RUSSIA

Subcommittee. Ms. Harrington, last year, you submitted testimony that stated that you had finalized implementing agreements to allow MPC&A and [other] efforts in Russia to fully resume and that you did “not anticipate further delays in getting...work back up and running under the [new Russian] framework”.

What happened? Is there any nonproliferation work in Russia that can move forward at this time?

Ms. Harrington. Yes – Material protection, control and accounting (MPC&A) cooperation with key non-Rosatom sites and organizations is continuing under the Multilateral Nuclear and Environmental Programme in the Russian Federation (MNEPR) framework agreement, as is cooperation at a limited number of Rosatom sites and organizations.

Subcommittee. What do you believe to be the future of US-Russian cooperation in nuclear security issues?

Ms. Harrington. Existing work will continue in the near future to complete security upgrades and sustainability work directly with a subset of Rosatom and non-Rosatom sites, but the Russian decision to scale back cooperation will accelerate the shift of focus to cooperation on technical engagements on key foundational elements of modern and effective security. This represents a continued and expected transition away from security upgrades assistance work to nuclear security “infrastructure” cooperation. This includes topics such as training, regulatory development, transportation security, and exchanges of best practices.

DOE/NNSA also expects to focus on cooperation with Russia and third parties, such as continuing to minimize the use of highly enriched uranium (HEU), including through the repatriation of Russian-origin HEU.

Subcommittee. Russia still owns large amounts of dangerous nuclear materials which our government assesses to be inadequately protected.

How are NNSA nonproliferation strategies evolving as a result of your inability to do work in Russia, which previously comprised the bulk of the NNSA’s nonproliferation activities?

Ms. Harrington. Because Russia maintains the largest holdings of weapons-usable material, DOE/NNSA will continue to seek technical engagement with Russian sites and organizations, including continued activities to promote exchanges on nuclear security between senior government counterparts.

DOE/NNSA will also work to maintain nuclear security relationships with neighboring countries, offering continued training and training-center support to also maintain regional capabilities. We will continue to help strengthen border and port security programs with partner countries around Russia, to enable detection and interdiction of any trafficked nuclear material, including consideration of additional measures that would be prudent to pursue.

SECRETARIAL WAIVER FOR PROJECTS IN RUSSIA

Subcommittee. Ms. Harrington, in the 2015 Omnibus, Congress prohibited new funds from being used for new projects in Russia without a Secretarial waiver explaining why such work is in the U.S. national security interest.

Is there any funding in this budget request for work in Russia?

Ms. Harrington. DOE/NNSA has not requested funding for activities in Russia in the FY16 budget, considering the 2015 Omnibus language.

Subcommittee. Has the NNSA terminated all ongoing work in Russia? What activities have continued?

Ms. Harrington. DOE/NNSA has not terminated work in Russia; MPC&A cooperation with key non-Rosatom sites and organizations, and a limited number Rosatom sites and organizations, is continuing. Cooperation includes completion of limited, ongoing security upgrades and engagement on nuclear material security best practices, including topics such as training, regulatory development and inspections, and transportation security.

Subcommittee. Do you expect the Department to submit a Secretarial waiver for additional work or are you waiting for a breakthrough in talks with Russia?

Ms. Harrington. DOE/NNSA is preparing a waiver for the Secretary of Energy's review in support of continuing limited work in Russia using prior year funding. Cooperation with Russia on nuclear security remains an important element to the global effort to reduce the threat posed by nuclear terrorism, and therefore, supports key interests of not only the United States but the international community.

REMAINING RISKS IN RUSSIA

Subcommittee. Ms. Harrington, NNSA has made considerable progress in securing the most high-risk nuclear material in Russia, namely by improving the physical protection and material control and accounting systems at over 200 buildings. Russia has stated that it does not want to be considered a state that requires foreign assistance because it can provide for its own needs, which is certainly an understandable position.

Isn't it a positive development that Russia has decided to fund its own physical protection needs for its nuclear materials? What are your concerns with Russia's position in this matter?

Ms. Harrington. It is a positive development that Russia is asserting responsibility for its own nuclear security costs. This is in keeping with the planned transition, underway for several years, of U.S.-Russia cooperation toward a more equal partnership rather than the donor-recipient model of the past. Careful negotiation and implementation of the MNEPR Agreement was intended to foster continued security engagement through such a partnership. While it is our hope that Russia will sustain the security upgrades we helped them implement, previous experience leads us to believe that they may not sufficiently budget for these activities.

Subcommittee. If the highest priority physical security systems have been upgraded, what is the need for continued U.S. funding?

Ms. Harrington. DOE/NNSA remains concerned about Russia's observed focus on physical security upgrades and protection against outsider threats, rather than on a holistic nuclear security approach that includes material control and accounting, training and a robust regulatory regime. We have seen real progress in this regard since the beginnings of our collaboration with them, but effective nuclear security is not a fixed state; it requires continuous evaluation and improvement. We believe that continued nuclear security collaboration with Russia—including limited upgrades and engagement on best practices—is imperative to promote security improvements across its vast nuclear complex and squarely in the national interest.

DOMESTIC RADIOLOGICAL PROTECTION

Subcommittee. Ms. Harrington, the U.S. made several commitments regarding enhancing the security of radiological materials to limit the prospect of dirty bomb attacks.

How much of the budget request will go towards meeting commitments to secure the *highest category* of radiological materials in preparation for the 2016 Nuclear Security Summit?

Ms. Harrington. Roughly 63% (\$47,200K) of the FY16 budget request for domestic radiological security will go towards securing the highest Category (Category 1) radiological materials. NNSA is placing special emphasis on recruiting the remaining 116 U.S. facilities with Category 1 radioactive sources to participate in security enhancement partnerships (as of March 2015, 319 out of 435 Category 1 facilities had already partnered with NNSA).

Subcommittee. If only some of the funds go towards securing the *highest category*, how much funding is being spent on *lower category* materials that are less attractive to a would-be terrorist? Why use limited defense funds to go after less risky materials when there is so much high category material to secure?

Ms. Harrington. The remaining FY16 funding will go towards securing Category 2 radiological materials. Although the initial focus for meeting the Nuclear Security Summit gift basket is on Category 1 materials, Category 2 materials are still considered high risk (according to International Atomic Energy Agency and U.S. Nuclear Regulatory Commission guidelines) and are very attractive for would-be terrorists. NNSA, in partnership with the interagency Radiation Source Protection and Security Task Force, developed a process that identifies the subset of radioactive materials of most concern and at what quantities they become high risk.

Additionally, some funding is assigned to finding sustainable risk reduction solutions for high risk materials in both the short and long term that go beyond security in place.

QUESTIONS FROM MR. FORTENBERRY OF NEBRASKA

DEFENSE NUCLEAR NONPROLIFERATION

Mr. Fortenberry. While there was a small increase in the Defense Nuclear Nonproliferation budget from FY15 to FY16, it's still well below funding levels from as recently as 2013.

What would the NNSA do with more funding for Defense Nuclear Nonproliferation?

Administrator Klotz. As you noted, the President's Budget proposes an increase for Defense Nuclear Nonproliferation (DNN) above the 2015 enacted level provided by Congress. The proposed funding level reflects planned 2016 DNN activities.

INTERNATIONAL NUCLEAR SECURITY

Mr. Fortenberry. Cooperation with Russia on nuclear material security established at the end of the Cold War expired in December 2014.

Considering the significant decrease in funding for nuclear security cooperation for FY 2016, how does the NNSA plan to prioritize preventing terrorists from obtaining nuclear material?

What does the NNSA plan to do to preserve the international nuclear security regime?

Administrator Klotz. Nuclear nonproliferation is an enduring mission, and emerging nonproliferation threats and challenges require DNN to be flexible, dynamic and responsive to new and evolving threats. Due to the global nature of nuclear security and nonproliferation issues, DNN continues to evaluate the global nuclear security threat environment and apply its all-source “over-the-horizon” strategic studies to validate that its implementation efforts remain focused on both addressing current nuclear threats and anticipating the emerging and evolving threat trends that lie ahead. Nuclear security cooperation will continue to be one of many ways in which NNSA will help reduce the dangers posed by nuclear proliferation and nuclear and radiological terrorism to the United States.

NUCLEAR SECURITY CONT.

Mr. Fortenberry. The majority of nuclear material in the world exists in countries of the former Soviet Union and the United States; but there is still a considerable level of nuclear material located elsewhere in the world--such as in South Africa.

How does the NNSA plan to preserve and improve partnerships with countries besides Russia to mitigate this threat on nuclear security?

Administrator Klotz. The U.S. national security strategy makes international cooperative partnerships a critical and necessary element in achieving U.S. nuclear/radiological security objectives. NNSA is the U.S. lead or co-lead in many key international engagements to cooperatively strengthen the global nuclear security regime. These partnerships extend the reach of NNSA programs and play a key role in demonstrating international support for action against the global nuclear proliferation and terrorism threat. Further, this broader and ongoing engagement helps establish a level of confidence and trust that bolsters NNSA's ability to quickly engage the support of regional partners whenever opportunities arise.

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