

HEARING TO RECEIVE TESTIMONY ON STRATEGIC FORCES PROGRAMS OF THE NATIONAL NUCLEAR SECURITY ADMINISTRATION IN REVIEW OF THE DEFENSE AUTHORIZATION REQUEST FOR FISCAL YEAR 2012 AND THE FUTURE YEARS DEFENSE PROGRAM

WEDNESDAY, MARCH 30, 2011

U.S. SENATE,
SUBCOMMITTEE ON STRATEGIC FORCES,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:38 p.m. in room SR-232A, Russell Senate Office Building, Senator E. Benjamin Nelson (chairman of the subcommittee) presiding.

Committee members present: Senators Nelson, Shaheen, and Sessions.

Committee staff members present: Leah C. Brewer, nominations and hearings clerk; and Jennifer L. Stoker, security clerk.

Majority staff members present: Madelyn R. Creedon, counsel; and Roy F. Phillips, professional staff member.

Minority staff members present: Daniel A. Lerner, professional staff member.

Staff assistants present: Hannah I. Lloyd and Brian F. Sebold.

Committee members' assistants present: Ann Premer, assistant to Senator Ben Nelson; Chad Kreikemeier, assistant to Senator Shaheen; and Lenwood Landrum, assistant to Senator Sessions.

**OPENING STATEMENT OF SENATOR E. BENJAMIN NELSON,
CHAIRMAN**

Senator NELSON. This is the first of the Strategic Subcommittee's—Forces Subcommittee's hearings, in review of the fiscal year 2012 budget request.

I'm going to go ahead and start with my opening statement. I think my ranking member is on his way.

We have hearings now scheduled for April 6, which will address the strategic systems, bombers, ICBMs, and SLBMS; for April 13, which will address ballistic missile defense programs; and on May 4, which will address national security space programs.

Today, we're—we have with us Mr. Tom D'Agostino, the administrator of the National Nuclear Security Administration. With Mr. D'Agostino are Dr. Donald Cook, the deputy NNSA administrator

for defense programs, and Admiral Kirkland Donald, and deputy NNSA defense administrator for naval reactors. We also have the directors of the three NNSA National Laboratories, Dr. Miller, director of the Lawrence Livermore National Laboratory; Dr. Paul Hommert, director of the Sandia National Laboratory.

We welcome you all to the hearing.

I would note that this is the first time that Admiral Donald and Dr. Cook have testified before the subcommittee. Sadly, this will be the last time that Dr. Anastasio will testify before the Armed Services Committee in his capacity as director of the Los Alamos National Laboratory, having announced his retirement, later this summer. We wish you—and you had a long and distinguished career—and we wish you all the best in your future endeavors and thank you for all your service.

Last year, the Armed Services Committee, and the Senate as a whole, devoted considerable time and effort to consideration of the New START Treaty. The Armed Services Committee alone held 11 hearings and briefings on the subject. And the debate on the floor went on for almost 2 weeks before the Treaty was ratified. And one of the major issues discussed by the committee and the Senate was the ability of NNSA to maintain the nuclear weapons stockpile safely, securely, and reliably into the future.

A part of that debate and discussion was the overall well-being and funding of the nuclear complex, principally—particularly, the new facilities that were needed at NNSA Y-12 facility in Oak Ridge, Tennessee, and at the Los Alamos National Laboratory. Parts of this complex were described as, quote, “decrepit,” by the bipartisan Strategic Posture Commission. And I would note that each of these new facilities—the uranium-processing facility at Y-2, referred to as the UPF, and the new facility to replace the current chemical and metallurgical resource facility, referred to as CMRR, at Los Alamos—are multibillion-dollar facilities. The Government Accountability Office has put the NNSA on its high-risk list as a result of the difficulties that NNSA has had delivering major construction, and other projects, on scope, schedule, and budget. So, we look forward to hearing how NNSA will position itself to successfully deliver two new multibillion projects, both of which will be under construction at the same time.

The long-term ability of the NNSA laboratories to provide the technical support to the stockpile was also a topic of considerable discussion. Over the 5 years prior to 2010, funding for nuclear weapons work was substantially reduced. The labs went through significant layoffs. And the result was a system that was beginning to lose its technical capability to support the stockpile for the long term.

To sustain the abilities of the nuclear weapons complex, President Obama laid out a 10-year plan last fall which included substantial annual increases in funding for fiscal years 2011, 2012, and beyond.

From the 6.4 billion appropriated for weapons activities in fiscal 2010, the fiscal year 2011 funding was to be 7 billion, and the fiscal year 2012 budget request is 7.4 billion. This increase was to continue over the 10-year period. Some Senators argue that even these substantial increases weren't enough, and voted against the Treaty.

With the Continuing Resolution, the long-term funding for NNSA isn't clear and, based on the proposals coming from the House, could be substantially less than the funding requested by the President for both 2011 and 2012. One of the main issues of the hearing today will be the impact of the current funding uncertainty and the projected funding levels on the ability of NNSA to maintain the nuclear stockpile.

The Nuclear Posture Review determined that it was essential for the United States to maintain a triad of nuclear delivery system: bombers, land-based ICBMs, and the submarine-launched ICBMs. To sustain the triad into the future, the NPR outlined the need for replacement programs for the current bomber fleet and a replacement for the Ohio-class ballistic missile submarines. The Office of Naval Reactors, which Admiral Donald heads, is a dual-entity of the NNSA and Department of the Navy, with responsibility for the design, development, operations, maintenance, and disposal of the nuclear propulsion plants on naval surface ships and submarines.

One of the primary ongoing missions of the Office of Naval Reactors is the development of a new reactor for the Ohio-class replacement ballistic missile submarines. The funding requested in the fiscal year 2011 and 2012 budgets is critical to keeping the reactor design process in sync with the overall design of the submarine.

Admiral Donald, we also look forward to discussing with you the impacts of the current funding situation on the Ohio-class replacement, as well as the other work of your offices.

So, I thank you all.

And now, it's my pleasure to turn this over to my good friend and ranking member, Senator Sessions.

STATEMENT OF SENATOR JEFF SESSIONS

Senator SESSIONS. Thank you, Mr. Chairman. It is a great pleasure for me to work with you. You know how much I respect and admire your leadership. And I think, together, we'll do our best to fulfill our responsibilities to the taxpayers and to the security of America.

This hearing focuses on the President's 2012 request for NNSA. Never has a nuclear weapons complex faced a turning point as significant, I think, as the one before us today. As highlighted by the bipartisan Perry-Schlesinger Strategic Posture Commission, a commission that I helped put the language in to create, both physical and intellectual infrastructure are, quote, "in serious need of transformation and require significant attention and investment. After years of neglect, the infrastructure has degraded to the point where we decide to recapitalize or forego the ability to certify and produce safe, secure, and reliable weapons." Today's hearing provides an opportunity to discuss the '12 budget, assess its adequacy, and deliver a credible deterrent that is safe, secure, and reliable.

So, I welcome the commitment that the President has made for modernizing the nuclear weapons complex. While we may disagree on the likelihood that we'll have a nuclear-free world sometime in the future, the President has clearly recognized that the world we live in today requires a strong nuclear deterrent and that efforts toward reducing the size of the stockpile depend on a modernized weapons complex, a robust ability to produce, refurbish, and re-

place legacy weapons with weapons that are safer, more secure, and reliable.

The 1251 report that's part of the New START Treaty was a key first step in ensuring the future viability of the complex. But, it was only a first step. A long-term sustained commitment that spans future administrations and Congresses alike is essential. Now, that's not always easy to do, to maintain a defense—long-term defense project like this.

I am, however, already concerned that some in Congress have forgotten the National security importance of the weapons complex, and have neglected to appropriate what seems to be the necessary amount of funds for 2011. In fact, the most recent full-year fiscal year 2011 appropriations bills, the House appropriators cut the fiscal year 2011 budget by 312 billion, and the Senate appropriators cut the weapons program by 185 billion. After countless hours of debate to fully fund the administration's 10-year-plus proposal during this Treaty debate, this failure to recognize the National security importance of complex modernization, I think, is disappointing. Hopefully, I'm wrong, and you can do the job without as much money as we originally thought. But, I'm worried about it.

Going forward, I intend to advocate for the restoration of the funds necessary to meet the goals that we set when we worked on the Treaty together. The construction projects at Y-12 and Los Alamos are the foundations of the modernization effort, and are the key enabler to a long list of warhead life extension programs over the next 20-plus years. I look forward to hearing more about these programs, understanding how NNSA intends to ensure that both facilities are delivered on time and on cost.

Cost is a big question on these projects, to me. In the report that accompanied the New START Treaty, and has since been updated, the current cost estimate for the chemistry and metallurgy research replacement is a range between \$3.7 and \$5.8 billion. That's a lot of money. Alabama's general fund budget is \$2 billion a year. And the cost estimate for the uranium processing facility is between 4.2 and 6.5 billion. Together, these buildings would cost between 7.9 and 12.3. If necessary, okay. That's what we have to do, it'd be—it's critical to our defense, we have to do it. But, I don't think it's wrong for Congress to look—ask some about those high figures.

When it was released last year, the Nuclear Posture Review included some troubling language that threatens to restrict the tools necessary for our weapons designers to design weapons with the highest degree of safety, security, and reliability. According to the NPR, warhead life extension programs will, quote, "give strong preference to options for refurbishment or reuse," close quote, thus restricting the ability of the labs to pursue the benefits associated with the replacement option.

I remain concerned by this guidance, and associate myself with the concerns raised by 10 distinguished former lab directors who stated, in a letter to the Secretaries of Defense and Energy, that the NPR, quote, "will stifle the creative and imaginative thinking that typified the excellent history of progress and development at the National Laboratories," close quote. I think that's a serious point that we must consider.

Look forward to hearing what steps have been taken to ensure our weapons designers will not be restricted from utilizing the tools necessary for developing the most credible, safe, secure, reliable stockpile possible.

Thank you, Mr. Chairman, and the witnesses.

Senator NELSON. Well, thank you, Senator Sessions. It's always a pleasure to work with you.

Senator Shaheen, do you have any opening remarks?

Senator SHAHEEN. No, thank you.

Senator NELSON. Okay. Well, if not, Mr. D'Agostino, I understand that you will present an oral opening statement on behalf of the panel. And I would note that your prepared statement, as well as the statements of the three lab directors, will all be included in the subcommittee hearing record. Please proceed.

STATEMENT OF HON. THOMAS P. D'AGOSTINO, ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION, AND UNDER SECRETARY FOR NUCLEAR SECURITY, DEPARTMENT OF ENERGY; ACCOMPANIED BY HON. DONALD L. COOK, DEPUTY ADMINISTRATOR FOR DEFENSE PROGRAMS, NATIONAL NUCLEAR SECURITY ADMINISTRATION, DEPARTMENT OF ENERGY; ADM KIRKLAND H. DONALD, USN, DEPUTY ADMINISTRATOR FOR NAVAL REACTORS, AND DIRECTOR, NAVAL NUCLEAR PROPULSION, NATIONAL NUCLEAR SECURITY ADMINISTRATION, DEPARTMENT OF ENERGY; MICHAEL R. ANASTASIO, DIRECTOR, LOS ALAMOS NATIONAL LABORATORY; GEORGE H. MILLER, DIRECTOR, LAWRENCE LIVERMORE NATIONAL LABORATORY; AND PAUL J. HOMMERT, DIRECTOR, SANDIA NATIONAL LABORATORIES

Mr. D'AGOSTINO. Thank you, Chairman Nelson, Senator Sessions, Senator Shaheen. It's a real pleasure to have the opportunity to address you today on a variety of investments that the President's proposing in the future for our Nation's nuclear security enterprise.

I'd like to begin by thanking all of the folks—all the Senators on the committee for your continued support of our program, the Department of Energy, the National Nuclear Security Administration, as well as the 35,000 men and women who work every day to keep our Nation safe.

I'm going to move the microphone further away. Maybe I'm—

We couldn't do our work without strong bipartisan support and, from my standpoint, the engaged leadership by Congress. It's absolutely critical, and this is actually what we've seen over the past number of years, in making things—moving forward.

I'd also like to take a few moments to discuss our role the Department and the NNSA have had in providing response to the tragic events in Japan. Mr. Chairman, as you know, the earthquake and tsunami that struck Japan on March 11, 2011, caused significant damage to the Fukushima Daiichi nuclear powerplant. Some of the radioactive materials have been released as a result of the damage. First and foremost, our thoughts and prayers are with the people of Japan during this very difficult time.

To assist in the response, we've deployed over 45 people and more than 17,000 pounds worth of equipment, including NNSA's

aerial measuring system and consequence management response teams. Our response teams are on the ground and they're utilizing their unique skills and expertise and equipment to help with our partners in Japan.

Since arriving in Japan, NNSA teams have collected and analyzed data gathered from more than 130 hours of flights aboard Department of Defense aircraft and thousands of ground-monitoring points to get actual data on the ground and pass that information back to the Government of Japan.

But, in addition to that, in order to ensure that this information is available to every single government agency, we've been moving this information throughout the government, as well as we've posted information online at our Web site, energy.gov, so members of the public can see this information themselves, evaluate it for themselves, and be informed. We'll continue to monitor this situation. And we continue to provide detailed technical support for the Japanese; in fact, on a daily basis. It changes dramatically on a daily basis.

The Department is also monitoring activities throughout—with a nuclear incident team that we have manned 24/7, with our naval reactors, as well. And we get together and exchange data. We report our assets at our National Laboratories to provide ongoing predictive atmospheric monitoring capabilities on a variety—based on a variety of different scenarios.

It's important to note that all of the data that we have seen to this point reaffirms what the President has said from the beginning, that we do not expect any harmful levels of radiation from Japan to reach the United States.

Mr. Chairman, I come before you today to discuss the President's 2012 budget request. And I do so at a time when the capabilities NNSA offers the Nation, and indeed the world, are on display in real time. The resources President Obama is requesting for fiscal year 2012 make a critical investment in the future of the nuclear security enterprise which will allow us to continue to implement his nuclear security agenda and respond to global crises like the one in Japan.

Despite the challenging economic times facing our country, President Obama has requested \$11.8 billion for NNSA, up from \$11.2 billion in 2011. As I see it, the budget request can be broken down into three key themes.

First, we're investing in the future. This budget request reflects the President's commitment, made last November, to invest more than \$85 billion over the next decade to assure the safety, security, and effectiveness of our nuclear stockpile and to modernize the nuclear security infrastructure and revitalize the science and technology base that supports the full range of nuclear security missions that we have. It provides \$7.6 billion for the weapons activities account to support our efforts to leverage the best science and technology and research in the world to maintain our deterrent and modernize the infrastructure that supports the deterrent. This will enable us to enhance our surveillance of the stockpile, proceed with key life-extension programs for the B61 and the W78 weapons systems, and continue to design the uranium processing facility at Y-12 National Security Complex, and the chemistry and metallurgy

research replacement facility at Los Alamos National Laboratory. These two facilities will provide the necessary capabilities that are absolutely critical to maintaining the Nation's expertise in uranium processing and plutonium research. Investing in a modern nuclear security enterprise is critical to our stockpile stewardship program, but it also supports the full range of NNSA's nuclear security missions.

Which brings me to the second theme in this request, which is implementing the President's nuclear security agenda. President Obama has made strengthening nuclear security and the nuclear nonproliferation regime one of his top priorities. As he said in his speech in Prague in April 2009, the threat of a terrorist acquiring and using a nuclear weapon is the most immediate and extreme threat we face. This budget makes the investments needed to continue to implement the President's nuclear security agenda.

To power the nuclear Navy, President Obama has requested \$1.1 billion for NNSA's naval reactors program. The Nuclear Posture Review highlighted the need to build a replacement for the Ohio-class submarine, which will start to be retired from service in 2027. Our fiscal year '12 request continues the design work on the propulsion unit for that Ohio-class replacement submarine in order to meet the Navy's required procurement date of 2019.

This budget request also includes critical investments in a modern and sustainable spent nuclear fuel infrastructure at the naval reactor site at the Idaho National Laboratory. And this will allow us to move fuel away from wet to dry storage, and immediately—and ultimately, to dispose of it, while we maintain the capacity necessary to receive spent fuel generated during a sustained intense period of fuel handling at our shipyards.

Finally, the budget request seeks the resources to refuel the land-based prototype reactor in upstate New York.

These are all critical elements of the President's nuclear security agenda defined in the National nuclear—the National security strategy and in the Nuclear Posture Review.

Mr. Chairman, we recognize that this request for increased investments in the nuclear security enterprise comes at a time of acute financial challenges to our Nation. And we recognize that we have the need to be effective stewards of the taxpayers' money.

This brings me to the third key theme outlined in this budget, and that is our commitment to improving the way we do business and manage our resources, including budget resources, people resources, projects, and our infrastructure. I realize that you, the ranking member, and all members of this committee have many competing requirements. And while I believe that nothing is more important than our shared responsibility to ensure our Nation's security, I also recognize that it's my responsibility to assure you that we can manage those resources wisely. That's why we are working with our management and operating partners to streamline our governance model to devote more resources to critical mission work and maximize our ability to complete our missions safely and securely, and do that—cost-effective way. We're making sure that we have the right contracting strategy in place. We are improving our project management by ensuring we have qualified project managers leading our major projects, setting costs and schedule base-

lines on construction projects when design work is 90 percent complete, subjecting those estimate to rigorous independent reviews, and placing renewed focus across our enterprise on project management. That's why we recently created a new Policy and Oversight Office for managing major projects that reports directly to me and my office to make sure that this project management responsibility gets the high level of management attention it deserves.

We're continuing to find innovative ways to save money across our enterprise. Take, for example, our supply-chain management center. Since 2009, it has used new technologies and pooled purchasing power to drive efficiencies across our enterprise. The result has been more than \$213 million in auditable cost savings in the last 3 years—excuse me—in the last 3 and a half years.

All of this, part of—is part of our effort to create one NNSA, a true partnership between all of our programs and all of our M&O partners across the country to fulfill our common mission. We must break down our stovepipes, work collaboratively across our programs and organization, make sure our headquarters, site offices, and M&O partners are coordinated, and leverage all of our resources to meet a common objective, ultimately making the world a safer place.

Taken together, these steps will ensure that we have a modern 21st-century nuclear security enterprise that is safer, more secure, more efficient, and organized to succeed, and an enterprise that can address broader national security needs.

We're already realizing positive benefits as a result of our work. Last year, our Kansas City plant won the Malcolm Baldrige Award for quality. Since October, two NNSA projects have won separate Project Management Institute awards, including our Global Threat Reduction Initiative that became the first Federal project to ever win PMI's Distinguished Project Award. That's the vision outlined in this budget request. It supports our full range of NNSA missions and, more importantly, invests in the infrastructure, in the people, in the science and technology and engineering required to fulfill our missions.

I look forward to working with you and the members of the committee.

And with that, I'd be happy—we'd be happy to take any questions that you may have.

[The prepared statements of Mr. D'Agostino, Mr. Anastasio, Mr. Miller, and Mr. Hommert follow:]

Senator NELSON. Thank you.

In the interest of time, we asked you to sort of consolidate all the statements here, but I would like to take the opportunity to ask each of you what might be your major concern or primary issue that you might like to address at this point, in case we don't raise a question about it.

Why don't we start over on this side. Dr. Hommert?

Dr. HOMMERT. Thank you, Mr. Chairman.

As in my testimony—written testimony—I raised, I think, three issues. The first is something that has already been mentioned, that we're at a very pivotal time with respect to the program and the multiple demands of maintaining the strength of our science base. The need to execute the life extension programs, and the

need to have the infrastructure commensurate with that, is creating a very substantial demand on the system. I think we have to look at that very actively. We have to demand the highest standards of project management, as Tom has alluded to. But, it is a very fundamental shift of the state of our weapons program, to take on that breadth of commitment.

The second thing I'll mention that's most immediately, for us at Sandia, is the execution of the B61 Life Extension Program. The target FPU date for that is 2017. That—in requirements, to be at a first production unit in that timeframe, that's right upon us now. So, the urgency of the resolution of the fiscal year 2011 budget, where we're staffing up now to hold to that timeframe, is an immediate issue for us at our laboratory. We have—as an example, we need to be flight testing development units in 2013. So, there's very little time for us to adjust, if we're to hold that schedule. Very important issue.

And the last thing I would just highlight is an issue of the—sustaining the people competence, long term, for the institution and in support of the deterrent, and to highlight—I think this is true for all of the laboratories—the importance of the broader national security work that we do and what I would call the mutual reinforcing value of the work we do in other national security challenge areas to interplan and strengthen the basis of our workforce for the—supporting a nuclear deterrent, going forward. That's an important issue that I think now has become almost inseparable from how we would support the deterrent, going forward.

So, thank you.

Senator NELSON. Thank you.

Dr. Miller?

Dr. MILLER. Thank you very much, Mr. Chairman, for inviting us today, and for your continuing support of these critically important national programs.

The main points I'd like to summarize are, first of all, that the fiscal year 2011 and fiscal year 2012 budgets that have been submitted by the President for your consideration, I think, are good first steps. And as many of us have mentioned, I think the critical issue is sustaining that over successive administrations and successive Congresses, because it is a long-term prospect to put the nuclear deterrent on a firm footing.

The tools that you have so wisely invested in, in the past, are being effectively used to assess the stockpile today. And it's critically important that we move forward and take the actions that we see from those assessments. In the case of an issue that Livermore is concerned about, it's getting on with a study to look at how we might refurbish the ICBM warhead, the W78. It is aging. We know there are issues. We just need to get on with a study to tell us and you, the decisionmakers, what—the best ways of refurbishing this warhead so that it can continue to provide the deterrence that is so important.

The final area that I would again emphasize is the importance of the science and technology that NNS—that is derived from our NNSA mission, and the way in which that is leveraged to help the laboratories work on some of the country's most important problems. These are issues from supporting our warfighters in Afghani-

stan—Tom mentioned support of national and international emergencies, like what happened in the Gulf and what happens in Japan, and at the other end of the spectrum, working to help defend this country against terrorists and cyberthreats.

So, this is a very precious resource, in my view. And in these very difficult budget times, I think it deserves your careful consideration, because, in my judgment, it is a—it's critical to the—not only to the National security, but the economic future of this country.

Senator NELSON. Admiral Donald?

Admiral DONALD. Mr. Chairman, Ranking Member, and Senator Shaheen, thank you very much for allowing me to appear before you today and discuss my program, the Naval Reactors Program.

I would start off, first and foremost, by just acknowledging that what I spend the bulk of my time doing—I wake up every morning and go to bed every evening with my charter, and that is the safe and effective operation of naval nuclear propulsion plants. I don't think it should be lost on anyone that we operate 103 reactor plants. We operate them around the world, globally. We are welcome in over 150 ports worldwide. And the reason we are able to do that, and including operating in the vicinity of cities in the United States, is that people trust us. They trust us because of our record of success. And they trust us to deal with small problems before they become big problems, and to also be open and transparent with them, as far as how our program operates, and to ensure that we're doing good technical work.

The success of the program: We've been around now for over 60 years. We've been operating reactor plants at sea since 1955, when Nautilus went to sea. We've steamed 145 million miles safely without a reactor accident, without a radiological incident that effects the environment or people. That record has been—is attributable to a couple things; first and foremost, technical expertise and the devotion to the work that we do. But, as much as anything, it has been the very strong and committed support from this subcommittee and from the Congress in general. And it allows us the latitude to do the technical work that we need to do and to work on small problems before they become big problems, and again, a key to our success.

Mr. D'Agostino has highlighted three key projects that we're starting right now in support of national security. Those are certainly challenging projects. We understand that. But, it's also certainly within our expertise and experience to be successful in those projects. We've completed ship designs; most recently, the Virginia is the new class of submarine at sea, is held up as the hallmark of acquisition programs in the United States Navy right now. We're completing another design for the A-1B reactor plant; this is for the CVN-78, the Gerald R. Ford. So, we know how to do these things, and are ready to do it.

What's critical right now, though, is, we're in the early stages of these very complex projects. And the funding, early on, is critically important, because now we're setting design parameters, we're setting operational concepts for these plants that will, for the large part, define what the cost, schedule and capabilities of these plants will be by the time they arrive at sea, when the first Ohio replace-

ment goes to sea in 2029. We're doing that right now. And since our equipment tends to be the first that has to be there for the construction start in 2019, we are really in the very meat of the work to do to define what this plant's going to look like and what it's going to cost.

So, that was where I would ask for your consideration, looking at our budgets, looking at the request that we've made, to ensure that we get off to a good start on these projects, that we have the design maturity that will guarantee success, and that we will be successful in what it is we go about doing.

So, thank you very much for your time.

Senator NELSON. Thank you.

Dr. Cook?

Dr. COOK. My principal issue, concern, and direction is to execute the National strategy that was outlined in the Nuclear Posture Review, the Stockpile Stewardship and Management Report, something we call the section 3113 report, 1251 report, as you mentioned, and now a ratified New START Treaty.

The—as the program has changed, we've modified our program structure and management structure for execution. As you look at the President's budget, you'll see a 3.1-percent increase in science and weapons activities, a 4.8-percent increase in stockpile support, and a 21-percent increase in infrastructure. The reason for that ties to many of the things that you've mentioned and problems that we're well aware of across the complex.

So, to name a few. Although we often talk in terms of projects, the uranium processing facility at Y-12 and the chemistry and metallurgy replacement—research replacement facility at Los Alamos, in fact, these are basic capabilities for the Nation. One deals with uranium components, one deals with plutonium components and the necessary underpinning of science, technology. But, full manufacturing. For example, when one really looks at UPF, it is a factory. It's not just a building. It's the basic capability of the Nation for dealing with uranium components. At Y—at Los Alamos, it's not only a facility we're putting in place for actinide research and development, but will have the plutonium stores for the Nation. It will allow us to use other capabilities in a more effective way.

I mentioned the management structure. In order to enable effective execution, we've asked the management and operations contractors, both at Y-12 and at Los Alamos, who have parent companies who are, in fact, experienced and capable in nuclear areas, Bechtel and BWXT, to name just a few. And that is based on the fact that we know we've got to do these new builds. They are capability builds, but they're new nuclear builds, and they've got to be done to modern safety and security standards.

This all ties into stockpile deliveries for the Department of Defense. And while, a few years ago, we had just one life extension program in operation—and we still do, that's the full build of the life-extended W76 warhead that goes out to sea—we, today, have, also, the B61 study—the engineering prestudy and the cost study that we'll complete at the end of this year. And we have requested approval to begin the study for the W78 warhead, as Dr. Miller

mentioned, and look for adaptable interoperability we could have in two legs of the deterrent.

That's quite a set of things. There are certainly other things, such as high explosives pressing at Pantex, which we have turned on to execute. But, that's what's on our screen.

Thank you, sir.

Senator NELSON. Thank you.

Dr. Anastasio?

Dr. ANASTASIO. Mr. Chairman, Senator Sessions, Senator Shaheen.

First, let me thank you, Mr. Chairman, for your kind remarks in your opening.

And I would just like to personally thank this committee for all the support the NNSA missions have received over many years, but also the laboratory—Los Alamos—and my—me, myself, personally. I really appreciate the support of this committee. So, thank you for that.

When I think about Los Alamos, my number-one thoughts are around the general role of the laboratory. We're a national security science laboratory, and the thing that I worry the most about is, Are we a healthy, vital institution to carry out our missions and responsibilities? And as we've heard, those are clear, from the Nuclear Posture Review that flow down through Stockpile Stewardship and Management plan and the budget profile the administration has submitted, and the question before this committee and the Congress is, Is there funding available, in these difficult times the country faces, to fund this activity?

And for me, as lab director, the—one of the special responsibilities we all have is not only, "Can we carry out our mission today?" but we'll be able to do that 15 or 20 years from now, as well. And of course, that's all about, "Do we have not only adequate funding now?" but do we have a stable funding profile that we can plan to, so that we can make sure that the workforce is available that has all the special both diverse and deep capabilities that are necessary to meet these mission requirements that are so challenging technically?

Of course, we've—the budget's been under some stress for some time. And we have been working hard to try to mitigate that budget stress. And you've heard some of the strategies. Not only can we take the science and engineering that's so important for the nuclear weapons program, and use it to support other critical national missions around nonproliferation or countering terrorist threats, intelligence community work, DOD support, et cetera—not only can we do that, but we've also designed the efforts that we go after with other sponsors to supplement the science and technology base of the laboratory that the core program, and Mr. D'Agostino's program, is not fully able to support. So, we've tried to mitigate the constraints he has on his budget by seeking funds from other sponsors to help support that fundamental capability.

And so, when I think about the future, it's not only, "Do we have adequate funding?"—the challenge that you face for the NNSA programs—but, it's even the broader spectrum of national security programs that this Congress is contemplating that will really im-

pect the health and vitality of the institution and our ability to carry out our mission today and well into the future.

Thank you, sir.

Senator NELSON. Thank you.

We'll begin 8-minute rounds.

My first question is—relates to weapons funding—gets right to the heart of it. It goes to, once again, Dr. D'Agostino and Dr. Cook. Under the Continuing Resolutions, the weapons activities budget request for fiscal 2011 for NNSA was provided. This is a substantial increase, some 625 million above the fiscal year 2010 funding level. On the other hand, there is now talk that a permanent budget for the balance of fiscal year 2011 may be 20—or, 200 to 300 million lower than the fiscal year 2011 budget request, the level at which the weapons program has been operating. What impact would a reduction in fiscal year 2011 funding have on the weapons activities programs, given that we're now half way through the fiscal year?

Mr. D'AGOSTINO. I'll be glad to start, sir. And I'd ask Don—

Senator NELSON. Sure.

Mr. D'AGOSTINO.—to—

Senator NELSON. That would be fine.

Mr. D'AGOSTINO.—follow up.

It would have a significant impact, Mr. Chairman. Our ability to execute funds effectively depend, in great deal, on knowledge of the path forward. We're blessed to have the President request it not only and Congress follow, and allow us to proceed as the President's request in this area. The uncertainty—and we've—and I've directed Don, and he has been executing, with the laboratories, to work on the program that we have requested and that the Senate has allowed us to move forward with.

But, there is this uncertainty, of course, when we look at the debates that happen back and forth. It tends to color the ability—thinking about, “Well, should I hire up in order to do the B61 work at Sandia?” for example—the many tens, and even hundreds, of people that are required to put this in place. Because, if it doesn't come through, I might have to fire them. And this kind of cycling is very bad for the workforce. It's very inefficient. At the lower levels themselves, if we ended up with a lower level, of course—what would be authorized and appropriated—then, of course, we would have to start making some very significant cuts, because we've started the year at this higher rate.

Don, you might be able to provide some more specifics.

Dr. COOK. Yeah. I'd—my answer, sir, would be that it would be a substantial change from where we are. With the anomaly in the Continuing Resolution, we have chosen not to waste time. We have a number of weapon systems that are operating beyond their original design lifetime. The infrastructure projects that we must execute across the board are at very key and sensitive steps in design, preparing for execution. The hiring has been going on. And the National strategy has been made clear. So, at this point—and particularly now shortly close to halfway through the fiscal year—in fact, any reduction would have a very substantial effect.

Senator NELSON. The effect of halfway through the year is, of course, doubling the impact, also catching you in the middle of hir-

ing decisions, no ability to plan for the next few days to—til we know what the number would be. So, appreciate you making that clear for the record.

My colleague has also indicated a concern about that. We need—we're going to engage in cuts, we need to know exactly what we're doing, and we've got to do it in a responsible way, consistent with what decisions we've made and expectations we have following the New START Treaty ratification, as well. So—

Admiral Donald, we're going to talk a little bit about naval reactors funding. The fiscal year 2012 funding level for the Office of Naval Reactors is approximately \$127 million below the fiscal year 2011 request and the amount available for your office under the Continuing Resolution. Can you explain to us what impact has—this CR has had on Office of Naval Reactors development work for the Ohio-class replacement reactor? And are there other areas where the CR is impacting the naval reactors?

Admiral DONALD. Yes, sir. What it has meant, so far, as we discussed—as I discussed, in my earlier statement, is, it's put us behind, as far as the work that we're doing to do the concept development and the design work to prepare ourselves to get into construction of key components and to do the work we need to do to make sure that design is mature at the time we start construction in 2019.

Specifically, on the Ohio replacement program, this is the design for the reactor plant, and I have to be in synchronization with the Navy as they're designing the rest of the ship, and as I am designing, from the Navy side, the remainder of the steamplant that goes with it. So, there's a very closely coupled relationship here. And if I get out of sync with them, then that will not only potentially delay the ship, it'll also increase cost.

When we look at where we are right now, if I were held at the CR level, our estimate is, is that we'd be looking at a 6- to 9-month delay in the delivery of the ship. Now, that's a long way out, but if you look at the compression of the schedule and what we have to do between now and 2019, compared to what we have done in the past, on Virginia, on the Ford aircraft carriers, we are pretty comfortable in saying that will be a delay of somewhere between 6 to 9 months.

Similarly, on the Navy side, if there were reductions in funding on the Navy side that remained in the CR for the rest of the year, you looked at the entire ship, you would be talking to a 1- to 2-year delay, potentially, in the delivery of the ship.

There are also personnel costs associated with that. And hiring. We would not be able to hire, our estimate right now is, somewhere on the order of 100 to 150 people to support the designers that we'd need to get in place to do that work. You can't ramp that up overnight, because these are highly technically sophisticated individuals. They need experience in what they're doing. We're in the middle of a demographic change in our business, where we've got a lot of senior folks ready to retire. We want to transfer that knowledge over to the younger folks and help them become more effective at what they're doing in the design work.

And then we would be looking at potentially having to lay people off, both in the shipyards and in our laboratories. Our estimate, if

we stayed at the CR level, somewhere on the order of 50 people. And that would just be the beginning of where we would start.

So, it's a significant impact. And again, very early in the design work, where we're taking on—I would—there are really two key technical challenges that we're looking at in this design. The first is, we want to do—we want to build a reactor plant—a reactor core that will last for the life of the ship. This is a 40-plus-year ship. We've done life-of-the-ship cores for Virginia-class at 33 years. We've never gone to 40. You would ask, "Why would you want to do that?" If we can do that and eliminate that lengthy refueling overhaul in midlife, like we do for the Ohios right now, then the potential exists that we would not have to have as many Ohio replacements right now as we do Ohios. We have 14. We would be looking to buy 12 of those ships instead of 14, because you've bought more operational availability if it's not sitting in the shipyard. There's technical challenges to that. We believe we are capable of meeting that challenge. And that's key to this early design work that we're doing.

The second thing we're putting on this ship is an electric drive. We're changing the propulsion mode from the standard steam turbine reduction to electric drive. What that brings you is enhanced quieting. In a submarine, stealth is everything. A deterrent is not really a deterrent if people can find it. So, we want to make sure it cannot be found. And given the fact that this ship will be operating out to 2080, we feel that it's necessary to make the investment upfront in this stealth technology to ensure that it is a viable asset well into the future, long after we're gone from this business.

So, those two key technical challenges, the importance of the early investment in the design, that's where I'm concerned. If I can't get that investment now, and get those parameters and that design work done now, and the right people in place, puts that at risk.

Senator NELSON. Thank you.

Senator SESSIONS.

Senator SESSIONS. Thank you very much.

It's difficult to overstate the fiscal crisis this Nation is in. Admiral Mullen has said it's the greatest threat to our National security—our debt. This year, we will spend \$3.8 trillion and we'll bring in 2.2. Forty cents of every dollar is borrowed that we're spending today. People know that I believe in a strong Defense Department, so the reporters, first thing they want to ask is, "Well, is Defense Department immune, Senator Sessions? You want to cut everything else. But, is Defense Department immune?" Defense Department is not immune. I'm just telling you. And neither is energy. The Energy Department came forward with a budget request for next year of 9.5-percent increase. They're not going to get a 9.5-percent increase. We don't have the money.

So, what would happen in a private world? I think—I guess I'm just giving you a little—since I'm the ranking Republican on the Budget Committee and I'm living with these numbers every day, forgive me. But, you've got to get in your head that things have changed. That's all I'm telling you, that things have changed. The ability to go first-rate on everything we did and be able to proceed and pay big salaries and bonuses and build new buildings and all—

of course, I guess the weapons complexes haven't seen a lot of increases in a long time, there's no doubt about it. And that's why we've got to go forward. But, every dollar has got to be fought for, Mr. D'Agostino. And if you can build a building for a little less than we—you got to do it.

And I—so, to follow up a little bit on the Chairman's question, the House CR version calls for a 312- million reduction; the Senate's; 185 million. To what extent—let's—can you give us any more information about how much could be sustained and how much can't be sustained to reach your mission? Because I am of the long-term view, I think that all of you share, that we have diminished the weapons complex for a very, very long time, and it's at a very dangerous stage. We made a national commitment. The President made a commitment as part of this START Treaty. And—of course, I think either one of these—anyway.

So, what can we do? And what can you tell us about how much you've got to have to stay on track without doing damage to the program and ending up costing more than otherwise would be the case?

Mr. D'Agostino?

Mr. D'AGOSTINO. Yes, sir. I might start. And then, as you wish, I'll let our colleagues add in, as well.

We talked—you had talked specifically about the 312 and the 185 numbers, the differences, maybe, between House and Senate at various stages of the bills. One is a 50-percent reduction to our plans on increases and—

Senator SESSIONS. Fifty-percent reduction of what, now?

Mr. D'AGOSTINO. What we—the 312 is about 50 percent of the 624 that was requested, the difference between—

Senator SESSIONS. Six—the 624 increase.

Mr. D'AGOSTINO. Yes, sir.

Senator SESSIONS. All right.

Mr. D'AGOSTINO. Right.

Senator SESSIONS. Now, we—see, the American people are getting a little confused about all this.

Mr. D'AGOSTINO. Right.

Senator SESSIONS. You get an increase of 600 and you reduce that increase to 300, and you say you've got a cut. I guess you have—since we started the year at the higher number, I guess you can say that. But, the way our budget projections are—

Mr. D'AGOSTINO. Right.

Senator SESSIONS.—we—somebody projects it's going to increase it 3 percent, and you say we're only going to increase 2 percent; they say that's a cut. But, the average American, that's not a cut.

Mr. D'AGOSTINO. I understand, Senator. And as you mentioned, we do—we are digging ourselves—

Senator SESSIONS. But, you only—

Mr. D'AGOSTINO.—out of a hole—

Senator SESSIONS.—get half as much increase as you hoped to get.

Mr. D'AGOSTINO. Well—and then, as a result of that, we won't be able to do the type of a program that we put forward that we believe is necessary for the NPR, specifically in three broad areas. And we can delve into the details as we have time to.

The first area is our work on the stockpile itself. At a 50-percent reduction—and, of course, we've been spending at the higher rate, as authorized in the Continuing Resolution, so it is—it has a magnifying effect—will result in significant changes to our B61 life extension work, and it will result in—just to carry that particular problem forward, this life extension is absolutely critical if we're going to get the system modernized in place so that it continue to support the Nation from fiscal year—from fiscal year 2017 and beyond. So, if we don't do this life extension work that we have planned, it will have a grave impact on our ability to maintain that particular warhead for our stockpile, which the Defense Department and the President both believe is necessary to do. That is a—that's a huge upfront impact.

The other impacts, of course we have these two large capabilities—

Senator SESSION. So, no money invested in that except for the new money that you got?

Mr. D'AGOSTINO. We have—certainly, we have existing money to maintain the B61, which is what we call surveillance work. It's like lifting the hood and looking inside the warhead and maintaining it. But, our ability to move forward with the life extension in time to meet our 2017 date will be impacted, and we would have to scale back significantly the type of work, and do the bare minimum necessary on that particular warhead.

The other significantly large area—that's an example in directed stockpile work—the other area that would be impacted, I believe, is our ability to bring on board, for the Nation, a uranium and plutonium capability. It will be impacted. It'll be pushed out a few years. These are these—what we've called—what have been called projects, but which Dr. Cook correctly describes as national capabilities. I think it's important for—and I believe the committee understands that these aren't just capabilities to take care of our stockpile. They are, at a minimum, that. They are a lot more than just taking care of our stockpile. These are the capabilities that are absolutely critical in order to work with plutonium and uranium, which is absolutely necessary for us to do nuclear counterterrorism work and do the nuclear nonproliferation work which many feel—including myself—feels is part of our integrated national security—our nuclear security mission space. All of this ties together.

We want to get out of buildings and capabilities that were built in—that were from 1952—were put in place in 1952. Even if we proceed on—at the President's request level, we'll have been in these facilities for well over 60—close to 70 years, as a matter of fact, because the capability won't come on board for another 10 years or so. So, moving forward is absolutely essential in order for us to maintain our stockpile and to maintain the nuclear security work.

I've talked plenty. But, I—if you will, sir, I'd—

Senator SESSIONS. All right. I've had—just a moment, please.

Dr. COOK. Yeah, I'll add a few words. Let's see, the difficulty is that, at the same time, we must replace 60-year-old capabilities in special nuclear materials, uranium and plutonium. We've got weapon systems that are now operating beyond their original design lifetimes. And the President's fiscal year 2012 request is for the 20th

year in which we have had a moratorium on underground testing. So, if I started with one point, it was—it is, we must effectively put the complex to work, that waiting further, not investing, is a clear decision to take on additional risk in all three areas that I mentioned. And those are fairly severe.

Now, if I can look to hope at all here, it is that we can reform our management practices, as the Administrator said, improve the way in which we're doing work. So, we're looking at the industrial suppliers—I've already mentioned the parent companies of Los Alamos and Y-12, people who bring to the government sector the best industrial practices. We're already moving forward to directives reform, reform of the DOE directives in which we are seeking to adopt consensus standards—ISO-2000, ISO-9000, ISO-14000. I'll state an assertion that that, in many areas, not nuclear areas, is a better way to go to improve speed, efficiency, and the conduct of all work. We can clearly improve our management disciplines.

But, the core issue I'd start with is, if we don't effectively put the complex to work, all aspects—research and development, project development, rebuilding the capabilities, and mainly manufacturing warheads, but based only on the previously tested designs, with no new military capabilities or requirements—that is clear. That's national policy. And waiting will not make it better. I'm sure you understand that. But, we could improve some of our business practices.

Mr. D'AGOSTINO. Admiral Donald has 1 minute of—
Senator SESSIONS. Sure.

Admiral DONALD. I wouldn't want to walk out of here and leave you with the impression, Senator Sessions, that we don't understand the significance of the fiscal problem that we face. But, also, I want to leave you also knowing that we view it as our obligation to do the best that we can to operate as efficiently as we possibly can. If you look at our budgets over the last—really, since I've been in this job now, 6 and a half years, we've been relatively flat, essentially adjusted for inflation. And even within that budget, we took on the project to put our spent-fuel handling capability in place so that we could transition from wet fuel storage in Idaho to dry fuel storage to keep us in compliance with our Idaho agreements that we entered in 19—the mid-1990s. We did that within our budget and didn't come and ask for any additional funding to do that. That came at a price, though, because it—we did not—if—the assumption was, if we were tasked with new projects, we'd have to come to you and ask you for some additional resources. And what you see in our increase in funding—the 125 million between fiscal year 2002 and fiscal year 2011, and then the additional into fiscal year 2012—really reflects those three projects that Mr. D'Agostino had mentioned. And all three of those—we're working against the clock on them. The Ohio replacement, I've already mentioned, that—we'll make a—if we make decisions today to delay, it'll have the impact in 2029, when a replacement ship is not there to cover for the one that went out in 2027. The prototype refueling, I'm working against physics, because the fuel is being depleted in that prototype right now. And not only is that where we're going to do the derisking of the technology to build a core for Ohio replacement, but that also is going to provide the training platform for

one-third of our nuclear operators that go out into the fleet. So, I need to go and replace that capability, as well.

And then finally, the spent fuel handling facility in Idaho—I've got a water pit out there that's got 25 metric tons of spent fuel in it that's—some parts of it are over 50 years old. Needs to be replaced. It's not only—it's not up—not at current code. It's not particularly efficient. And it's a—from our perspective, technically, it's not a situation we want to live with much longer in the future.

So, that's the type of—the timeline that we're working to and why we've come to you to ask you for this assistance for these programs.

Senator SESSIONS. Well, it's 84 billion over 10 ten years on total program. And that's a lot of money. And we just need you to be thinking any way possible to keep those numbers at as reasonable level as possible. But, the United States of America cannot not have a reliable nuclear arsenal. It is not acceptable. So, we have to find the money. But, I hope that you won't take the view that some government people seem to take sometimes that, "I'm not going to affect any efficiencies. You either give me money or I won't do the new project you want me to do." But, no business operates that way, you know, what businesses have to wrestle with every day. And families have to make priority choices. And we're asking you to do that because I want to protect this program.

I do think 300 million is clearly too much of a reduction, Mr. Chairman. And hopefully we can figure out a way not to go that far.

Senator NELSON. Thank you, Senator.

Senator Shaheen.

Senator SHAHEEN. Thank you, Mr. Chairman.

And thank you all very much for being here this afternoon.

Mr. Chairman, I know that the ETC subcommittee normally handles the nonproliferation portfolio, but it's come up a little bit in testimony, and so I would like to raise the issue here and follow up on some of the budget questions.

As you pointed out in your testimony, Mr. D'Agostino, President Obama, in talking about the threat to this country, pointed out that a nuclear weapon in the hands of terrorists is probably the biggest threat that we all stay up nights worrying about. And I was really horrified to see that, according to International Panel on Fissile Materials, the global stockpile of highly enriched uranium, which is the easiest material for terrorists to use to make a nuclear weapon, in 2010 was enough to make more than 60,000 nuclear weapons. So, given the insecure nature of these materials around the world, clearly this is a threat that we should all take very seriously.

And I'm—while I appreciate, and know that you all do, the need to address efficiencies in our budget, and to deal with the country's debt and deficit, I am concerned about the proposal in the House's budget that would have cut \$600 million from nuclear nonproliferation programs. And I wonder if you, Mr. D'Agostino, or any of the other panel members, could speak to what that would mean, in terms of what would not get done if that cut is realized.

Mr. D'AGOSTINO. Okay. Thank you, Senator Shaheen. Absolutely. The work that happens—there is clearly a connection between

these investments in the weapons activities account of the subcommittee's jurisdiction and how it impacts other elements of the National Nuclear Security Administration. The Defense Nuclear Nonproliferation Program absolutely counts on Y12, for example, in order to be able to have a place for this highly enriched uranium that we're bringing back to be processed, characterized, put in a situation so it can eventually be used as part of the—of a nation—national stockpile to support the naval reactors program for propulsion out into the future, as well as be available for downblending into low-enriched uranium to turn this into, ultimately, electricity for our—for peaceful uses here in this country. So, these investments in the weapons account are directly connected to the non-proliferation program. I think that's an important point. I think the committee—subcommittee understands that.

I do—I'm deeply concerned with the reductions in the non-proliferation program. And again, these are reductions from the request—

Senator SHAHEEN. Right.

Mr. D'AGOSTINO.—as Senator Sessions has pointed out—because what we are in the process of doing is implementing an aggressive but important program to lock down nuclear materials worldwide in 4 years. We don't do it by ourselves, of course. We do this in partnership with over 100 countries. But, we do require this—expertise from this country. Work that happens at Sandia, Los Alamos, and Livermore, in fact, provide the core expertise in order to say, "What's the best security system to design in Russia? Or—and how do we put it in place? And how do we know that it is actually in place and working as it should be?" So, these laboratories provide the foundational element of that. That 600 million would have a direct impact on our ability to implement the security—what we call first line of defense—secure the material in place. It would also have an impact on our ability to convert research reactors from highly enriched uranium to low-enriched uranium, a plan that we have laid out. We've converted 70 so far, but there's—there are many more research reactors that we know exist that we have a plan laid out to convert these research reactors from HEU to LEU. It would impact the ability to—for us to put radiation detectors at seaports, land border crossings, airports, and the like.

Obviously, if we are faced with a reduction, if you will, from our original plan, we will seek to fund the highest-priority work, the most important work, first. But, an element of maintaining nuclear security isn't just doing the security work in place, it's making sure that other nations who are in the process of bringing civil nuclear power do so in a way with the appropriate nuclear safeguards in place. So, we have an element of our program that would—is designed in order to help other nations have the right nuclear safeguards in place.

So, it—I believe it would have a significant impact on our 4-year lockdown effort. And I think this is the effort where we have a very clear direction that all—everyone feels is an important direction to go to. And that's essentially where we're at right now.

Senator SHAHEEN. Thank you.

I don't know if—do we have a limit on our time?

Senator NELSON. Eight minutes. Yeah, they're counting.

Senator SHAHEEN. Okay.

Dr. Miller, you talked about your concern that we may lose some of the best scientists and technicians if we're not able to ensure future funding and a commitment to the program. I wonder if you feel like, given that, we're currently investing enough in our future workforce, and what kinds of things we ought to be doing to ensure that we can attract the best and the brightest people to the program.

Dr. MILLER. Thank you very much, Senator.

The—again, just picking off of the recent conversations with Senator Sessions and yourself, you know, at the laboratories—Livermore, in particular—we have reduced the overall staffing at the laboratory by, like, 2,000 people over the last 5 years. And 2 years ago—

Senator SHAHEEN. Can I just interrupt you for a minute? Two thousand out of how many?

Dr. MILLER. Out of about 8,000. So, there were 8,000.

Senator SHAHEEN. Wow.

Dr. MILLER. There are about 6,000 now.

And 2 years ago, I testified that I thought we were in danger of losing the fundamental technical—science, technology, and engineering capability that the country relied on. That continued decline was stabilized in 2010. And we have seen, again in my words, modest increases—Don talked about 3 percent. That's only a slight—you know, a percent or so above inflation, but it is positive. So, we have begun—under the CR, under the President's planned budget for 2011 and 2012, we have started growing that back to a level that, in my judgment, would be sustainable over the long term. The same issue would occur if there were the substantial cuts in the nonproliferation program. Again, those are—there are substantial investments, fundamental people that provide the technical capability to build radiation monitors, provide advice to the government.

So, again, in my view, again, as I testified 2 years ago, the most important part of securing the talent at the laboratory is that the scientists and engineers understand that they have a stable future. You know, they're very highly trained, very highly technically qualified, and they want to be assured that they can work on some of the country's most important problems. If they can, we don't have very—we don't have difficulty hiring them, don't have difficulty retaining them. But, when there are budget ups and downs and uncertainties, that's when we have difficulty.

And so, again, my judgment is, fundamentally—and Mike talked about this—my—one of my fundamental responsibilities is the long-term health of the laboratory so its capabilities are there, when the country needs them, to apply to whatever the country's most important problems are. And for me to do that, the most fundamentally important thing is stability, national consensus on what we're doing. I think we have the National consensus, you know, in the congressional commission that has been referred to, the Nuclear Posture Review, now the START Treaty. We have that consensus. What we need now is to fund the programs that support that policy.

Senator SHAHEEN. Thank you. My time is up.

Senator NELSON. Thank you, Senator.

Let's take a second and talk about extending the, let's say, replacement facilities, and what that implication is, in terms of being able to deal with a \$100 million shortfall in '11 and whatever we might face in '12. Admiral Donald, what—in looking at replacing the facility that you have under your authority, we've got 40.6 million for conceptual design, and that would be a new spent-fuel building to support the NR program. In fiscal year 2012, the request for conceptual design is 53.8 million. The construction wouldn't start until 2013. What would be the implications, in terms, first, of fiscal impact, and then the second implication, in terms of what it would do to our National security if this were to be extended 1 or 2 years into the future?

Admiral DONALD. The facility that we're talking about is—this is where—for everyone—this is where—

Senator NELSON. Have you pushed your button?

Admiral DONALD. I think I'm on. I'm hot.

Senator NELSON. There, that's better.

Admiral DONALD. The—this is our spent-fuel facility in Idaho. All of the spent fuel, when we refuel aircraft carriers and submarines, or defuel them at the end of their lives, this fuel is shipped by rail to this facility. And what we do is, we put it in a large water pit and allow it to—it cools down for a period of time. We also examine it to make sure it's performing the way it was designed to perform. And then we process it for dry storage, to be in compliance with the agreements that we have with the State of Idaho, for all spent fuel to be out of wet storage by 2023.

So, the issue with this facility right now is, as I've mentioned before, it's aging. It's—some parts of it, or most parts of it, are 50 to 40 years old. It is not in compliance with current code. In fact, it has cracks in it. We know that for a fact. We've—we manage those cracks, and we deal with it. It does have some seismic liabilities that we manage. But, from a point of view of just stewardship, this is a facility that, in fact, needs to be replaced.

There's another element, as well, in that we are in the—a very intense period of fuel handling in our shipyards that's being driven by the Nimitz-class aircraft carriers. They're all coming in for their midlife refuelings. They're heel-to-toe. Right now, the U.S.S. Theodore Roosevelt is completing hers. Next will be U.S.S. George Washington. And we will be heel-to-toe in these refuelings now for a very long time, all the way out through the retirement of the most recent ship, 50 years from now. There will be one in some sort of a fueling availability. We have to be able to move that fuel out of the shipyards. To do that, you have to have an efficient and capable facility to do that. And it has to be configured to take the fuel as it is designed when it comes out of a ship.

We have had to, because of this heel-to-toe refueling, redesign how we take the fuel out, reconfigure it into a new system, and the facility has to be redesigned to accept this new fuel. Otherwise, I would have aircraft carriers backing up in the shipyards. They wouldn't be available to do what they're supposed to do. Or, we could have fuel that we didn't have a place to put it.

So, the target is 2020. That's when I have to have the new facility in place. The construction starts in 2015. The construction design starts in 2013.

And what we're talking about in a delay is, it's really a day-for-day, because it's a fairly structured process of design, design maturing, and then buying the pieces, the heavy equipment that you need to go do this. So, you're talking about slipping out beyond 2020. When that happens, we're going to have to have another place to put that spent fuel from the aircraft carriers.

The best way we would do that would be with new shipping containers—more additional shipping containers. Each one of these shipping containers costs about \$22 million. For a Nimitz-class aircraft carrier, that's nine shipping containers that you would need. So, that's a \$200 million bill that you'd be talking about if we couldn't get the facility done by 2020, for each Nimitz-class aircraft carrier that comes out of—comes for refueling.

So, that's where we're—that's the timeline that we're on, the impact that we're talking about. And then, there's a day-to-day impact of just doing work in an aging facility. Things break, and you have to go and fix them. And it results in inefficiencies in how we deal with our business.

So, I think that should capture it for you, the subject of your questions.

Senator NELSON. If the—let's talk just a second about the delays in the naval reactors. The construction project to receive is—in Idaho—to receive and handle M-290 spent-fuel shipping containers is about a year late. Would these be the shipping containers that you're talking about?

Dr. COOK. Yes, sir, they are.

Senator NELSON. So—but, they're a year late. The most recent schedule indicated that the approval would start construction CD-3 in the second quarter of fiscal year 2011. That ends tomorrow—or, it begins—second quarter fiscal starts tomorrow. No, I guess it ends tomorrow. So, can you give us some idea of the delay? Because, if there's already a shortfall, in terms of what we're looking at, in terms of money to be able to do, does this delay just add to that problem?

Admiral DONALD. Well, where we are—the CD-0 was—that was completed in 20—2009, I believe it was—CD-1, we have—we want to complete by fiscal year '12—the end of fiscal year '12. And because of the delays in funding we've seen so far, we are, in fact, behind in the design. We've been able to—at least to date, because the numbers have been relatively low, we have been able to continue some of the fundamental work. We're engaged, right now, in environmental—the environmental impact statement and the concept design work, and continuing that. But, really, this year and in 2012 is when we have to get the work completed to make the selection at CD-1 of the type of facility, what it's really going to look like, where it's going to be located, and how it's actually going to work—be configured to do the work that we need it to do. So, this is really a crucial point in the design, because you do set the basic parameters that define the cost and schedule for the rest of the program.

Senator NELSON. Mr. D'Agostino, the committee—I—certainly—and I am one who has been very interested in the efficiencies initiative at the Department of Defense. Secretary Gates has directed all elements of that Department to identify efficiencies that can be reutilized. I heard earlier discussion—I think Dr. Cook said—about efficiency and management programs and what you can do. Could you identify, maybe, for us some of the efficiencies that perhaps—a project that has been identified for the next 5 years. Have you gotten to the point where you can do that?

Mr. D'AGOSTINO. Yes, sir. I mentioned one in my oral statement. We talked about the supply chain management center. This is something that I started in 2007 when we realized the way we were operating whereas, more or less—and this isn't quite a fair—eight independent—I mean, they're are no completely independent sites, but eight sites. And we felt there were great efficiencies to be achieved by operating as an integrated and interdependent organization, where we would look to drive efficiencies in not having three capabilities to do the same thing, but dropping us down to one or two capabilities, when it's—where we need redundancy for a national capability, then we would have that. And at that time, we felt we could go from 35 million square feet—take 9 million square feet off of our 35-million-square-foot enterprise of buildings and things like that. So, we have 9 million square feet of space that we're moving out of.

Another area of efficiency that we hope to implement—we've implemented part of the way—is to reduce the amount of security space that we are having to protect in our enterprise, to consolidate nuclear materials to fewer geographic locations and to fewer sites within those geographic locations. Because, the fewer locations that we have to protect, the less expensive it is to maintain. And as a result of those efficiencies, more recently, we've been able to take our \$765 or \$770 million security budget and drop it down to, like, about \$710 million or so.

At Y12, we plan on going from 150 acres of high security space, ultimately to 15 acres of high security space. That shift—and this is where this uranium processing capability that we want to shift into—will allow us to move forward and save what we believe is a total of \$200 million of operating expenses, both in security costs per year, as well as operating efficiencies, by getting the whole enterprise right-sized, if you will, leaving, kind of, the cold-war enterprise behind us, and shifting to a much smaller, more integrated future enterprise. That's the—those are the macro pieces that we have before us.

There are a number of other specific initiatives we have, looking forward. One of them is to look at putting together a common work breakdown structure. This is something that Don—Dr. Cook is implementing in the weapons program. We're looking at linking the formulation of the budget to the execution of the budget in a real way. We've brought into our organization some folks that have direct budget formulation and execution experience from OMB. Phil Calbos is here in the room. He really understands this work, and he works for Dr. Cook directly in this particular area.

So, I'm optimistic that we—and there are a series of—I mean, I could talk for a while, but you probably don't want me to.

Don—

Dr. COOK. Yeah, if I could add—and give you one past one and present one, Senator—I'm sorry, one future one.

A past one that we had in this year. We knew that, when we got the training and the tooling in place at Pantex, that we would be able to do some of the disassembly work more rapidly and completely safely. And that was proven. So, we had a target of number of disassemblies, and the Pantex operation, with the training and the tooling in place, exceeded that target—in fact, there was another 26 percent—so, 126 percent on 100—and in a year in which there was a major flood at Pantex; if you recall, more than 10 inches of rain on a very bad day in the city of Amarillo, and the ground couldn't absorb that much rain. In our programs, we're taking account of that effect. We're using efficiencies to make sure that we can recover from that.

Now, that's the past. I said there was a future. When you look at the—it often is called “common”—we really mean “adaptable and interoperable” study for the ICBM warhead, the W78 and the SLBM warhead, the W88. Provided that we can get authorization to move ahead on that, we have the potential to save cost and to have interoperability in the arming and fusing—arming, fusing, and firing units, that Dr. Hommert could address, or in the nuclear explosive packages, that Dr. Miller or Dr. Anastasio could address. What we do know is, if we don't do that work in a joint way, it's going to cost more. And so, some of this may be cost avoidance. It doesn't matter. It's still cost savings in the end.

Mr. D'AGOSTINO. And Admiral Donald may have one, as well, if you have time, sir.

Admiral DONALD. Yes, sir. The Ohio replacement has been one that we've obviously been focused on here for several years now. But, in the name of efficiencies, one of the issues is, we work through the Defense Department's acquisition process. We were the first program through that new process that Dr. Carter headed up. But, we were challenged to drive the cost of that ship down. And, far as our part was concerned, one of the key decisions that was made, that helped us in that regard, was the decision to go from 20 missile tubes to 16 missile tubes. Because, what that allowed us to do was to downrate the propulsion power that was needed. So, obviously, it's a smaller reactor that you would need. But, what it also allowed us to do was to go back—the size fell into the envelope where we could go back and use components that we had already designed for the *Virginia*-class and bring those into this design—not have to do it over again—but, several of the mechanical components, to use those over again. And it enabled us to drive the costs of that propulsion plant down and rely on proven technology that's—pumps and valves and things like that don't change like electronics do. So, we're pretty comfortable putting that in a ship that will be around til 2080. But, we were allowed to do that.

Senator NELSON. Well, in the absence of my colleagues, perhaps I'll just continue.

Last March, when we held subcommittee hearings, we were focused on the protective forces that guard the nuclear weapons and materials at DOE sites. Now, are—Mr. D'Agostino, are you suggesting that you've been able to consolidate some of those sites,

which now means that the actual cost of security for those has been reduced?

Mr. D'AGOSTINO. Yes, sir. There are—the security costs have been reduced. We are also looking, very much so, at other opportunities to go forward even more. Dr. Miller and Dr. Anastasio are quite familiar with our joint effort to look at, instead of the Nation maintaining two separate plutonium capabilities to deal with large quantities of plutonium material, one at Lawrence Livermore and one at Los Alamos, we've decided to consolidate to one plutonium capability, and it's a national capability. It doesn't belong to Los Alamos. It belongs to the Nation. But, both laboratories can work in one particular facility. That effort to reduce the amount of plutonium—we've got a commitment to get this done by the year 2012—will allow us to change the size and the nature of the security forces at Lawrence Livermore. And George may be able to add to that, if he'd like.

There are other things that we're doing in the security area. One is, we've driven to—we're pushing towards common uniforms, for example, which get the security force together in a particular fashion to essentially show that this is a cohesive unit. Even though they're managed under different contracts, there are opportunities to drive some commonality there.

We're using what I would call life extension activities for the security vehicles that we have in place. We're using technology to put in long-range detection capabilities and look out, further out, and rely less on humans, if you will, and guards—guns, guards, and gates—and put technology into the picture. We're introducing this in our training capability.

All of these things have saved tens of millions of dollars a year. Brad Peterson, who runs that particular activity, working with the labs and our production plants, have been able to do that. And that's why they've—we've been able to reduce it. I keep challenging Brad in this area. I do think that, as we get to fewer sites with large quantities of nuclear material, there are some further opportunities.

But, we can't do it in a way that this whole purpose is just to drive costs down. I mean, in—or, to try to spend less money. We obviously want to make sure the security—as we're making these changes, we don't lose that kind of operational focus that we've had in the past.

Senator NELSON. Now, the goal is, obviously, to create the best security at the most reasonable cost.

Mr. D'AGOSTINO. Yes, sir.

Senator NELSON. And so, I understand that. And it's obvious that the primary goal here is to protect the materials and the weapons. So, we'll have to deal with that.

In December, NNSA made a significant change in the way it—in the way you manage the aviation program of the source of Office of Secure Transportation. And, as part of this change, the DOE aviation program will have increased oversight responsibilities for the NNSA program, in lieu of the FAA. Is there a plan that's in place for DOE Aviation Office to oversee this NNSA program? Dr. Cook, would that be your—

Dr. COOK. Yes, it is my area, sir.

If I could address some of the driving factors and where we are, I'd like to do that.

The focus that we have in the aviation area is looking forward to the life extension program work that we have to the material moves, whether they're special nuclear materials or not, and to the limited-life component exchanges that are required across the country. The—in order to focus on the efficiency and the effectiveness, we've taken a look across the board at the Office of Secure Transportation and have concluded—and we had a plan to replace our aging fleet of three DC-9s with 737s that would still be used airplanes, but would have perhaps only 10 years of life on them. We're part way through that effort. One of the DC-9s has been sold. Two 737s have now been acquired. And in parallel with that, we're looking at the equipping contracts, the maintenance contracts, and the nature of the pilots. We also have taken the opportunity to sell aircraft that we no longer needed, as we've focused the effort—so, we've sold a couple of Twin Otters and one other airplane—and are focusing now on those things that tend to be inherently Federal functions. Specifically, the aviation fleet for OST will be focused on moving the emergency response teams for radiological or nuclear threats effectively and as rapidly as we have in the past. We—as far as maintenance, given that we're going to have different aircraft, three 737s, rather than three DC-9s—we intend to competitively place the maintenance contract that is currently in place. And given the future need, we've taken a look at the nature of the pilots, although there are a small number of pilots, 15 or fewer, to operate around-the-clock and have the emergency response capability. We're looking at whether it makes sense to Federalize those pilots, or not.

There are different standards that the FAA requires for different types of aircraft flights and different missions. We are working hand-in-hand with the FAA. We also work with the Office of Aviation Management within the Department of Energy, which is outside NNSA, but within—and I've given you the base for looking forward with this. The core objective here is to focus the activity that we have even more tightly on the mission, while we replace the aircraft, and then put in place the maintenance contracts for future years and for pilots to do that.

Senator NELSON. Going back to the question about the security guards, has—have you addressed the—Mr. D'Agostino—the need to deal with the retirement issue for the Guards? Are we having some sort of a program that—perhaps an accelerated 401k program—some system of reduction of that guard force?

Mr. D'AGOSTINO. Yes, there is—there was a report that had 29 recommendations in it to address, frankly, a whole waterfront, if you will, of security guard issues that had cropped up over the previous 5 years. And we've worked our way through 14 of those recommendations, I think smartly, dealing with making sure that there was a career path and a progression with those guards. In fact, we didn't do it just with ourselves. We made sure that we had security guard representation to identify these areas and work through these.

We're now dealing with, if you will, the second half of those. Some of them have to do—and we're undertaking a study right

now—some of them have to do with the question of whether—you know, should there be a 20-year retirement, if you will? What are the differences between a security force that's a static security force around a fixed location, versus a dynamic security force, such as the OST discussion we were just having earlier, that's moving about? And how equivalent is that to the United States military, which has the 20-year retirement? We're looking at pulling—these are the more difficult and more challenging questions, the ones that you've described—on how to put that forward.

But, I think what we have is a path forward, with the unions' representatives that are there, to kind of address these 29 recommendations systematically, and work our way through them. We're not—we haven't finished the job. And right now, we're in the process of comparing the different types of retirement systems.

Senator NELSON. And the retirement systems could be different, depending upon the requirements for the employment and what's required for employment. In other words, what kind of background, what kind of education requirement there might be as part of the job. So, I would think that would be a good thing to work on, because of the—it looks to me like you're going to be seeing a further reduction, at some point along the way, and having that taken care of—

Mr. D'AGOSTINO. Yeah.

Senator NELSON.—up front is almost always better than dealing with it after the fact.

Mr. D'AGOSTINO. Yes, Mr. Chairman. We're—I think the—with respect to the security guard force, what we've observed—because we do have a few different models across our enterprise, and we're looking to drive—taking the best approaches out of each of these models. And one of the main concerns is, particularly for those particular guards that are in a very active, what we call, a fighting position, is, we want to make sure that if they end up getting hurt—you know, the knee hurts; I mean, I'm—that they aren't now, all of a sudden, laid off. And we've observed that there's some value to have the security guards be actually a part of the M&O contractor workforce. That way, they can—if they've—if it's—there's a difficulty in meeting the physical requirements to continue in this position, they can be retrained and stay and have a full career, if you will, contributing to our—and serving our country as an active worker in the M&O contract.

So, these are—we're very much in tune to that. The guard force, particularly, is concerned about making sure they're not in a position of, "Well, if you get hurt, then, I'm sorry, you've lost your job." We definitely don't want that.

Senator NELSON. Mr.—Dr. Anastasio, I don't want you to think that your trip here was not worthwhile, not having asked very many questions.

Dr. ANASTASIO. Every trip here is worthwhile, Senator.

Senator NELSON. Is there anything that we haven't asked here that we should have asked or would be important for us to have asked, as you think about the budget issue, trying to cut, not slash, appropriate reductions, recognizing any cut has some implication? What we want to do is avoid the unfortunate implications, or the

unfortunate consequences, of something that was not well thought through.

Dr. ANASTASIO. Yes sir, I'd have a few comments along those lines. First, as far as efficiencies we've been talking about, of course, not only at the administration's level, at the Federal level, that the laboratories were working on that, too. As an example, last year, in fiscal year '10, at Los Alamos, we increased our purchasing by \$209 million, and we did that with fewer staff. So, we are able to get a lot more work done, and actually were able to downsize the staff.

And the laboratories really made great strides in improving our efficiency. In my—in the hearing we had last summer, I was worried about the pension system, and one of the ways we've been dealing with the pension system is to use some of the savings that we've accrued. And that's available to—for us to put—not back into science, unfortunately, but at least to cover the pension costs.

You ask about what would happen—delay with major facilities. I had a few thoughts on the CMR replacement facility, what would happen with the delays there. Senator Shaheen talked about non-proliferation. Just a reminder that this facility, the CMR facility, is where all the inspectors from the IAEA that go around the world that look at nuclear facilities, we bring them out to Los Alamos and train them. And that's the facility that that's done in. So, again, it's a multi-use facility, a national capability, as Mr. D'Agostino said.

With a delay, of course we'll have to continue to operate in our old facility, which right now is almost 60 years old. It happens to be literally on top of an earthquake fault—not the best place for a nuclear facility. And we have a reminder of that with what's going on in Japan.

By delaying it, also we put at risk when we'll be able to increase the capacity for pit production at the laboratory. And the life extension programs that we have planned are going to require some pits to be made to support, even if their reuse of existing pits, we may run out of them. And so, it's building more of the same pit that we already have in the stockpile. Of course, the CMRR will not build pits, but it—all the samples that are taken to qualify a new pit are used in the existing facility. We don't have the capacity or the efficiency to get that done in time. So, if we are delayed with CMR replacement, then that's going to delay the time we'll be available.

Of course, the other thing we do is—the facility's separated from our pit production facility, and then we're shipping samples of plutonium around on the road. And so, by doing that, of course, that's a security risk. By bringing a new facility online, we'll reduce our security posture.

And then the most important thing, perhaps, is—of course, any delay in a project ultimately costs you money. So, if we delay the start and the process of this facility, it means, in the end, the integrated costs—although in one year you might save money, over the life of the project, it's going to cost you money.

So, I think those are the—some of the difficult challenges that the Congress has to face is—I think the simple version is, if you think of this in a project space, saving this money this year may well cause you to spend more money in the long run.

The other pieces we've harped on are—or, not harped on, but emphasized with you—is the people issue. Right now, our workforce sees pay freezes, see increased contributions to pensions, increased costs of medical care, and now an uncertain budget. And they've been very excited about the new commitment that the country has made. There's exciting consensus to work on. But, at the same time, these uncertainties make them start to wonder, Is there a career here for them?—the younger ones. So, I think it's—we understand the challenges that the country faces, but if we can have a stable-looking budget out into the years, whatever level it's at, whatever the country can afford—and if it's too different than the one we've talked about, ultimately I think we have to go back to the policy and say, "If the country can't afford this program, then perhaps we have to go rethink the policy and come up a policy framework that the country can afford." I'm not sure I know what that is. But, that's the sort of challenge that you face.

Thank you, sir.

Senator NELSON. Thank you.

And I'll ask the same question of everyone else. Is there something that we should have asked, or something you would like to add, after all the discussion so far?

Dr. HOMMERT. Senator, let me just make a few—

Senator NELSON. Sure. Dr. Hommert?

Dr. HOMMERT.—quick comments.

Just to continue a theme that Dr. Anastasio highlighted about cost efficiencies and our sensitivity to that. You know, at Sandia, in the last year, we took decisions in our pension and our medical benefits and in cost efficiencies that have reduced the cost of our labor base by—be approximately a billion dollars, over this decade. The positive news in that is that our workforce has gone through that. They remain dedicated. We did not see an uptick in losses due to that, because—in part, because of their excitement about the program that they see the National policy laying out in front of them. So, again, I echo that, if that changes, that could have a different impact.

And then, the last thing I'll say is to return to, I think, really the question that Senator Sessions about, Well, what are our options if we cannot afford? And I'll focus it on the B61 for a moment. It's important to understand that every day—that the 61 is older than any other bomb system we've ever had. It's—we're in uncharted territory. It—whatever budget the country can afford, our commitment is that we will work to minimize risks of sustaining that weapon and ensuring its safety, security, and reliability. But, there'll be limits to how much we can control that risk, either in schedule or in the scope of what we do. It will require a possible relook at policy. I hope that won't be the case. And we will work diligently to extract every bit of efficiency for the funds you can authorize to execute that. But, it is a bit, again I'll emphasize, of uncharted territory for us on that weapon system.

Thank you.

Senator NELSON. Thank you. That is clearly something we have to keep in mind. The irony is inescapable, that a year ago we were making certain that the administration would ask for enough money. And now we're talking about—it's too much, because we

can't afford it. It's an inescapable irony. I do understand it. And I would imagine that employees and committed—those who are committed to the project might think that Washington has a bit of a sleight of hand: now you see it, now you don't.

Well, thank you all for your candid comments. We appreciate it. And this hearing is now adjourned.

[Whereupon, at 4:20 p.m., the subcommittee adjourned.]