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S. HRG. 111–897

THE NEW START AND THE IMPLICATIONS FOR NATIONAL SECURITY

HEARINGS

BEFORE THE

COMMITTEE ON ARMED SERVICES
UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

JUNE 17; JULY 15, 20, 27, 29, 2010

Printed for the use of the Committee on Armed Services

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THE NEW STRATEGIC ARMS REDUCTION TREATY AND IMPLICATIONS FOR NATIONAL SECURITY

THURSDAY, JUNE 17, 2010

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met, pursuant to notice, at 9:33 a.m. in room SD–106, Dirksen Senate Office Building, Senator Carl Levin (chairman) presiding.

Committee members present: Senators Levin, Lieberman, Akaka, E. Benjamin Nelson, Bayh, McCaskill, Udall, Hagan, Begich, Burris, McCain, Inhofe, Chambliss, Thune, Brown, Burr, and Collins.

Committee staff members present: Richard D. DeBobes, staff director; and Leah C. Brewer, nominations and hearings clerk.

Majority staff members present: Madelyn R. Creedon, counsel; Richard W. Fieldhouse, professional staff member; and Jessica L. Kingston, research assistant.

Minority staff members present: Christian D. Brose, professional staff member; Michael V. Kostiw, professional staff member; and Daniel A. Lerner, professional staff member.

Staff assistants present: Paul J. Hubbard, Hannah I. Lloyd, Brian F. Sebold, and Breon N. Wells.

Committee members' assistants present: James Tuite, assistant to Senator Byrd; Christopher Griffin and Vance Serchuk, assistants to Senator Lieberman; Nick Ikeda, assistant to Senator Akaka; Greta Lundeberg, assistant to Senator Bill Nelson; Ann Premer, assistant to Senator Ben Nelson; Patrick Hayes, assistant to Senator Bayh; Tressa Guenov, assistant to Senator McCaskill; Jennifer Barrett, assistant to Senator Udall; Roger Pena, assistant to Senator Hagan; Lindsay Kavanaugh, assistant to Senator Begich; Amanda Fox, assistant to Senator Burris; Jonathan Epstein, assistant to Senator Bingaman; Halie Soifer, assistant to Senator Kaufman; Anthony Lazarski and Rob Soofer, assistants to Senator Inhofe; Sandra Luff, assistant to Senator Sessions; Clyde A. Taylor IV, assistant to Senator Chambliss; Andy Olson, assistant to Senator Graham; Jason Van Beek, assistant to Senator Thune; Erskine Wells III, assistant to Senator Wicker; Brian Walsh, assistant to Senator LeMieux; Scott Clendaniel, Scott Schrage, and William Wright, assistants to Senator Brown; Kevin Kane, assistant to Senator Burr; and Ryan Kaldahl, assistant to Senator Collins.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Chairman LEVIN. Good morning, everybody. Today the Armed Services Committee begins hearings on the New Strategic Arms Reduction Treaty (START). I would like to welcome our witnesses: Secretary of State Hillary Rodham Clinton, Secretary of Defense Robert Gates, Secretary of Energy Steven Chu, and Admiral Michael Mullen, the Chairman of the Joint Chiefs of Staff. It's a real pleasure to have all of you with us this morning.

This, I think, is Secretary Chu's first appearance before the committee. I believe it is. In any event, you get a special welcome for that.

The New START that is before us today is an important treaty that will, as Admiral Mullen said earlier this month, make our Nation more secure and advance our core national security interests. This treaty is in keeping with a long tradition of bilateral, verifiable arms control agreements with Russia and its predecessor, the Soviet Union, and it strengthens the United States' commitment to nonproliferation.

The U.S. Senate has previously approved 10 bilateral arms control agreements with Russia, and before that the Soviet Union with overwhelming bipartisan majorities. Only 1 was opposed by more than 6 votes and, in that case, there were 19 votes opposed to it, and that was in 1993.

Three of these treaties were considered during some of the most difficult days of the Cold War and yet they were all approved with overwhelming support.

This New START supports a credible nuclear deterrent and maintains the nuclear triad, while allowing both the United States and Russia to reduce the total number of nuclear weapons. Between them, the United States and Russia have more than 90 percent of the world's nuclear weapons. While each nation clearly has more weapons than needed, reductions will happen only through treaties, as neither side wants to be unilaterally disarming.

This new treaty will help ensure that needed reductions continue one measured step at a time. Reductions of both nations' nuclear inventories are also required by the Nuclear Nonproliferation Treaty (NPT), and that is a treaty that we strive to have non-nuclear nations adhere to.

This treaty continues the reductions started in the Moscow Treaty, which President George W. Bush negotiated. Unlike the Moscow Treaty, however, this treaty is a verifiable treaty with inspections and other mechanisms that will ensure transparency in the nuclear arsenals of each side. This treaty will continue, although with different mechanisms than the START I, the means to allow both the United States and Russia to monitor each other's nuclear systems.

This new treaty and the attention that President Obama has brought to the threat from the proliferation of nuclear weapons and nuclear materials are critically important. The proliferation threat is real and includes the possibility that nuclear weapons and materials could fall into the hands of terrorists or others who wish to threaten the use of or use nuclear materials. Through this treaty and the related efforts to secure weapons-grade fissile materials, these dangers will be reduced.

Fundamentally, this treaty is a treaty that limits strategic offensive nuclear arms. It does not limit anything else. Some might want it to limit more. Some might fear that it does limit more. But it does not. For instance, there have been statements made suggesting that the treaty imposes constraints on our missile defense plans and programs. That is simply incorrect. From the very beginning of the negotiations, this administration has been very clear this treaty limits strategic offensive nuclear arms, not missile defenses.

A unilateral statement made by Russia concerning missile defense does not limit or constrain our missile defense efforts. Indeed, a U.S. unilateral statement makes it clear that "Our missile defense systems are not intended to affect the strategic balance with Russia," and the United States missile defense systems would be employed to defend the United States against limited missile launches and to defend its deployed forces, allies, and partners against regional threats. The unilateral statement that we made also states that the United States intends to continue improving and deploying its missile defense systems in order to defend itself against limited attack and as part of our collaborative approach to strengthening stability in key regions.

The unilateral statement of the United States will be made part of the record at this point.

[The information referred to follows:]

United States Department of State

Bureau of Verification, Compliance, and Implementation

Washington, D.C. 20520

April 7, 2010

Statement by the United States of America Concerning Missile Defense

The United States of America takes note of the Statement on Missile Defense by the Russian Federation. The United States missile defense systems are not intended to affect the strategic balance with Russia. The United States missile defense systems would be employed to defend the United States against limited missile launches, and to defend its deployed forces, allies and partners against regional threats. The United States intends to continue improving and deploying its missile defense systems in order to defend itself against limited attack and as part of our collaborative approach to strengthening stability in key regions.

Chairman LEVIN. While the United States must maintain the stockpile with or without this treaty, this treaty does bring renewed attention to that nuclear stockpile. This new focus on maintaining the nuclear stockpile through increased scientific and tech-

nical rigor ensures a credible nuclear deterrent and paves the way to future reductions.

In the early days of the stockpile stewardship program, significant strides were made in the ability of the nuclear weapons complex to maintain nuclear weapons without testing. It has been almost 18 years since the last explosive nuclear weapons test was conducted and still the stockpile remains safe, secure, and reliable. In many ways, the scientists and engineers know more today about nuclear weapons and how they function than they did in the days of testing.

President Obama, Secretary Gates, Secretary Clinton, and Secretary Chu have laid out a plan to increase funding for the nuclear weapons complex and ensure a robust capability for the foreseeable future. Linton Brooks, the former Administrator of the National Nuclear Security Administration (NNSA), has said that he would have truly welcomed the budget as robust as this budget plan of the Obama administration.

We look forward to a good discussion of all these issues with our distinguished witnesses, and I call upon Senator McCain.

STATEMENT OF SENATOR JOHN MCCAIN

Senator MCCAIN. Thank you, Mr. Chairman, and I thank our distinguished witnesses for their service to our country and for joining us today to discuss the New START and its implications for our national security. In my years in the Senate I have supported previous bipartisan efforts to reduce our nuclear weapons in step with the Russian Government, and I have been proud to do so. As we evaluate the New START and consider how to vote on it, I think there are three areas of concern that need to be resolved.

First, we need to be confident that the treaty is verifiable, and we will have a better sense of that once Congress receives the new national intelligence estimate.

Second, we need to be confident that the treaty in no way limits the administration's ability and willingness to deploy missile defense capabilities, regardless of the statements made by the Russian government.

Finally, we need to be confident that any future reductions in our nuclear stockpile will be accompanied by a serious long-term commitment to modernizing our nuclear stockpile so we can have confidence in its safety, security, and reliability.

On missile defense, as we are all aware, the concern that the New START could constrain our capabilities is an issue of significant importance. Secretary Gates, you have been quite clear "that the treaty will not constrain the United States from deploying the most effective missile defenses possible, nor impose additional costs or barriers on those defenses."

While such assurances are welcome, they don't change the fact that the treaty text, not just the preamble but Article 5 of the treaty itself, includes a clear legally-binding limitation on our missile defense options. Now, this might not be a meaningful limitation, but it's impossible to deny that it is a limitation, as the administration has said.

I continue to have serious concerns about why the administration agreed to this language in the treaty text, after telling Congress re-

peatedly during the negotiations that they would do no such thing, and I fear it could fuel Russia's clear desire to establish unfounded linkages between offensive and defensive weapons.

I look forward to discussing the rationale behind the treaty's references to missile defense, and, as we do, I would reiterate my long-held view that any notion of a Russian veto power over decisions on our missile defense architecture is unacceptable, and we should oppose any attempts by any administration to do so.

As part of the administration's submittal of the New START to the Senate, the National Defense Authorization Bill for Fiscal Year 2010 required a report on the plan for modernizing the nuclear weapons complex and delivery vehicles. With respect to the nuclear weapons complex, I am skeptical that the 10-year funding plan for NNSA adequately addresses the recapitalization needs of the weapons complex. The double counting of funds, combining those already planned for sustainment with the modernization effort, paints a misleading picture. $80 billion over the next 10 years is certainly a substantial sum. However, only a fraction of that amount is actually above what would be allocated simply to sustain the current stockpile.

Given the long-term neglect of the past decade, it is imperative that our investment fulfills our immediate and future national security needs. The administration's funding proposals establish an adequate baseline and, while more funding is likely needed, affordability must be closely scrutinized. A blank check is not the appropriate way to recapitalize our strategic deterrent. Modernizing our nuclear delivery vehicles, enhancing missile defense, and developing conventional weapons to augment our nuclear force far exceeds the necessary cost for the weapons complex alone.

This future financial commitment is daunting, so we need to allocate each and every dollar wisely and to the greatest benefit of our national security, careful not to simply pass the funding burden on to future administrations and Congresses. We must have a clear understanding of these priorities from this administration, as well as a commitment that such investments will be represented in forthcoming budget requests.

Let me conclude by saying this treaty will have implications on our nuclear force structure, and I look forward to hearing additional details on the composition of our strategic forces from our witnesses this morning.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator McCain.

Now let me start with Secretary Clinton.

STATEMENT OF HON. HILLARY RODHAM CLINTON, SECRETARY OF STATE

Secretary CLINTON. Thank you very much, Chairman Levin, Senator McCain, members of the committee. It's a great pleasure for me to return to testify before a committee that I was very honored to serve on.

We are here today, Secretary Gates, Secretary Chu, Admiral Mullen, and myself, because we share a strong belief that the New START will make our country more secure, and we urge the Senate to ratify it expeditiously. Now, I know that some argue we don't

need a New START, but let's be clear about the choice before us. It is between this treaty and no obligation for Russia to keep its strategic nuclear forces below an agreed level, and between this treaty and no on-the-ground verification of Russia's strategic forces.

As Secretary Gates and then, as you, Chairman Levin, have pointed out, every previous President of both parties who faced this choice has concluded that the United States is better off with a treaty than without one, and the U.S. Senate has always agreed.

More than 2 years ago, President Bush began this process that led to this treaty that we are discussing today. The New START has already received broad bipartisan endorsement. As James Schlesinger, the Secretary of Defense for Presidents Nixon and Ford, and the Secretary of Energy for President Carter, declared recently in his congressional testimony, "It is obligatory for the United States to ratify."

Now, why do so many people who have studied this issue over so many years, coming from opposite ends of the political spectrum, agree so strongly? Well, today I'd like to discuss briefly what the New START is and also what it is not. This is a treaty that, if ratified, will provide stability, transparency, and predictability for the two countries with more than 90 percent of the world's nuclear weapons. It is a treaty that will reduce the permissible number of Russian and U.S. deployed strategic warheads to 1,550, a level not seen since the 1950s.

In addition, each country will be limited to 700 deployed strategic delivery vehicles and 800 deployed and nondeployed strategic missile launchers and heavy bombers. These limits will help the United States and Russia bring our deployed strategic arsenals, which were sized for the Cold War, to levels that are more appropriate for today's threats.

This is a treaty that will help us track remaining weapons with an extensive verification regime. Now, this regime draws upon our experience over the last 15 years in implementing the original START. The verification provisions reflect today's realities, including the much smaller number of facilities in Russia compared with the former Soviet Union. For the first time, we will be monitoring the actual numbers of warheads on deployed strategic missiles.

By bringing the New START into force, we will strengthen our national security more broadly, including by creating greater leverage to tackle a core national security challenge: nuclear proliferation. This will also demonstrate our leadership and strengthen our hand as we work with others to hold irresponsible governments accountable, whether in further isolating Iran and enforcing the rules against violators, or in persuading other countries to implement better controls on their own nuclear materials.

It makes clear that we are committed to real reductions, to upholding our end of the bargain under the NPT, which has already brought about important benefits in my discussions with foreign leaders about strengthening the nonproliferation regime and a range of other topics.

I want to be also very clear that there are numerous things this treaty will not do. As Secretary Gates and Admiral Mullen will discuss more fully, the New START does not compromise the nuclear force levels we need to protect ourselves and our allies. It does not

infringe upon the flexibility we need to maintain our forces, including bombers, submarines, and missiles, in the way that best serves our own national security interests.

This treaty does not constrain our missile defense efforts. I want to underscore this because I know there have been a lot of concerns about it, and I anticipate a lot of questions. This is something this committee recently reiterated in the National Defense Authorization Bill for Fiscal Year 2011. Section 231 reads: "It is the sense of Congress that there are no constraints contained in the New START treaty on the development or deployment by the United States of effective missile defenses, including all phases of the Phased Adaptive Approach to missile defense in Europe and further enhancements to the ground-based midcourse defense system, as well as future missile defenses."

Now, I worked with some of you on this committee when I had the honor of serving in the Senate on behalf of a very strong missile defense system, so I want to make this point very clearly. Russia has, as the chairman said, issued a unilateral statement expressing its view, but that is not an agreed upon view, that is not in the treaty. It's the equivalent of a press release, and we are not in any way bound by it. In fact, we've issued our own statement, which is now part of the record, making clear that the United States intends and, in fact, is continuing to improve and deploy effective missile defense systems.

The treaty's preamble does include language acknowledging the relationship between strategic offensive and defensive forces, but that's simply a statement of fact. It, too, does not in any way constrain our missile defense programs.

The treaty also includes language—and I think this is Senator McCain's reference to Article 5—prohibiting the conversion or use of offensive missile launchers for missile defense interceptors, and vice versa. In fact, we had no intention of doing that anyway. As General O'Reilly, our missile defense director, has made clear in testimony, we reached the conclusion it is actually cheaper to build smaller, tailor-made missile defense silos than to convert offensive launchers. I mean, we could have had a long list stating we're not going to launch from any moving vehicle like a car or a truck or a cow. We could have said a lot of things that we're not going to do. The fact is, we weren't going to do them, and we weren't going to do this either.

The treaty does not restrict us in any way from building new missile defense launchers, 14 of which are currently being constructed in Alaska. I think the very facts on the ground undermine and refute any argument to the contrary.

The Obama administration has requested $9.9 billion for missile defense in fiscal year 2011. That is almost $700 million more than Congress provided in fiscal year 2010.

Finally, the New START does not restrict our ability to modernize our nuclear weapons complex to maintain a safe, secure, and effective deterrent. As Secretary Chu will discuss, this administration has called for a 10 percent increase in fiscal year 2011 for overall weapons and infrastructure activities, in a time of very serious budget constraints. We've called for a 25 percent increase in di-

rect stockpile work. During the next 10 years, this administration proposes investing $80 billion in our nuclear weapons complex.

Let me just conclude by taking a step back and putting the New START into a larger context. This treaty is one part of a broader effort to reduce the threat posed by the deadliest weapons the world has ever known, especially the potential intersection of violent extremism and nuclear proliferation. We have several coordinated efforts that have been briefed to this committee, including the Nuclear Posture Review (NPR), the recently concluded Nuclear Security Summit, and the NPT review conference, as well as extensive bilateral engagements.

While a ratified New START stands on its own terms and, when you look at the very real benefits it provides to our national security, it is part of a broader strategy.

Mr. Chairman, Senator McCain, members of the committee, we stand ready to work with you as you undertake your constitutional responsibilities with respect to this treaty, and we are ready to answer any and all questions. We hope that at the end of your deliberations you will come to the same conclusion that we and many others have reached, including many others who have sat in these chairs and voted in the Senate chamber, that this treaty makes our country more secure and merits the Senate's consent to ratification.

Thank you.

[The prepared statement of Secretary Clinton follows:]

PREPARED STATEMENT BY HON. HILLARY RODHAM CLINTON

Chairman Levin, Senator McCain, and members of the committee, thank you for the opportunity to appear before you. It is a pleasure to be back here, and a pleasure to testify with Secretary Gates, Secretary Chu, and Admiral Mullen. We share a strong belief that the New Strategic Arms Reduction Treaty (START) will make our country more secure, and we urge the Senate to ratify it.

I know that some argue we don't need the New START. But let's be clear about the choice before us. It is between this treaty and no legal obligation for Russia to keep its strategic nuclear forces below an agreed level, and between this treaty and no on-the-ground verification of Russia's strategic forces.

As Secretary Gates has pointed out, every previous President who faced this choice has found that the United States is better off with a treaty than without one. The U.S. Senate has always agreed. The 2002 Moscow Treaty was approved by a vote of 95 to 0. The vote on the 1991 START treaty was 93 to 6.

More than 2 years ago, President Bush began the process that led to the treaty we are discussing today. The New START treaty has already received broad bipartisan endorsement. As James Schlesinger, the Secretary of Defense for Presidents Nixon and Ford and Secretary of Energy for President Carter, declared recently in congressional testimony, "It is obligatory for the United States to ratify."

Today, I'd like to discuss what the New START treaty is, and what it isn't.

This is a treaty that, if ratified, will provide stability, transparency, and predictability for the two countries with more than 90 percent of the world's nuclear weapons.

It is a treaty that will reduce the permissible number of Russian and U.S. deployed strategic warheads to 1,550—a level not seen since the 1950s. In addition, each country will be limited to 700 deployed strategic delivery vehicles and 800 deployed and nondeployed strategic missile launchers and heavy bombers. These limits will help the United States and Russia bring our deployed strategic arsenals, which were sized for the Cold War, to levels that are more appropriate to today's threats.

It is a treaty that will help us track remaining weapons with an extensive verification regime. This regime draws upon our experience over the last 15 years in implementing the original START treaty. The verification provisions reflect today's realities, including the smaller number of facilities in Russia compared with former Soviet Union. For the first time, we will be monitoring the actual numbers of warheads on deployed strategic missiles.

By bringing the New START treaty into force, we will strengthen our national security more broadly, including by creating greater leverage to tackle a core national security challenge: nuclear proliferation.

It will demonstrate our leadership and strengthen our hand as we work with our partners to hold irresponsible governments accountable—whether in further isolating Iran and enforcing the rules against violators or in persuading other countries to implement better controls on their own nuclear materials. It makes clear that we are committed to real reductions, and to upholding our end of the bargain under the Nonproliferation Treaty—which has already brought important benefits in my discussions with foreign leaders, about strengthening the nonproliferation regime and a range of other topics. In my recent meetings with other NATO officials, they expressed an overwhelmingly positive and supportive view of the New START treaty.

There are also things that this treaty will not do.

As Secretary Gates and Admiral Mullen will discuss more fully, the New START treaty does not compromise the nuclear force levels we need to protect ourselves and our allies.

It does not infringe upon the flexibility we need to maintain our forces, including bombers, submarines, and missiles, in the way that best serves our national security interests.

The treaty does not constrain our missile defense efforts. Those of you who worked with me on this committee know my strong support of missile defense, so I want to make this point very clearly.

Russia has issued a unilateral statement expressing its view. But we have not agreed to this view, and we are not bound by it. In fact, we've issued our own statement making clear that the United States intends to continue improving and deploying effective missile defense systems.

The treaty's preamble does include language acknowledging the relationship between strategic offensive and defensive forces. But this is simply a statement of fact. It does not constrain our missile defense programs in any way.

The treaty also includes language prohibiting the conversion or use of offensive missile launchers for missile defense interceptors, and vice versa. But as General O'Reilly, our Missile Defense Director, has said, it is actually cheaper to build smaller, tailor-made missile defense silos than to convert offensive launchers. The treaty does not restrict us from building new missile defense launchers, 14 of which are currently being constructed in Alaska.

The Obama administration has requested $9.9 billion for missile defense in fiscal year 2011, almost $700 million more than Congress provided in fiscal year 2010.

Finally, the New START treaty does not restrict our ability to modernize our nuclear weapons complex to maintain a safe, secure, and effective deterrent. As Secretary Chu will discuss, this administration has called for a 10-percent increase in fiscal year 2011 for overall weapons and infrastructure activities, and a 25-percent increase in direct stockpile work. During the next 10 years, this administration proposes investing $80 billion in our nuclear weapons complex.

I want to conclude by taking a step back and putting the New START treaty into a larger context. This treaty is one part of a broader effort to reduce the threat posed by the deadliest weapons the world has ever known—especially the potential intersection of violent extremism and nuclear proliferation.

We have several coordinated efforts—including our new Nuclear Posture Review, the recently concluded Nuclear Security Summit and Nonproliferation Treaty Review Conference, and extensive bilateral engagements. While a ratified New START treaty stands on its own in terms of the national security benefits it brings to our country, it is also part of this broader strategy.

Mr. Chairman, Senator McCain, and members of the committee, thank you again for having us here today. We stand ready to work with you as you undertake your constitutional responsibilities, and to answer all your questions today and in the coming weeks.

We are confident that at the end of this process, you will come to the same conclusion that we and many others have reached—that the New START treaty makes our country more secure and merits the Senate's consent to ratification.

Thank you.

Chairman LEVIN. Thank you very much, Secretary Clinton.

Secretary Gates.

STATEMENT OF HON. ROBERT M. GATES, SECRETARY OF DEFENSE

Secretary GATES. Mr. Chairman, Senator McCain, and members of the committee, thank you for the opportunity to speak today regarding the New START between the United States and Russia, an agreement that reduces the strategic nuclear forces of our two nations in a manner that strengthens the stability of our relationship and protects the security of the American people.

America's nuclear arsenal remains a vital pillar of our national security, deterring potential adversaries and reassuring allies and partners. As such, the first step of the year-long NPR was an extensive analysis which, among other things, determined how many nuclear delivery vehicles and deployed warheads were needed. This in turn provided the basis for our negotiation of New START. The results of those studies give me confidence that the Department of Defense (DOD) will be able to maintain a strong and effective nuclear deterrent while modernizing our weapons to ensure that they are safe, secure, and reliable, all within the limits of the new treaty.

The U.S. strategic nuclear deterrent will continue to be based on the triad of delivery systems, intercontinental ballistic missiles (ICBMs), submarine-launched ballistic missiles (SLBMs), and nuclear-capable heavy bombers, within the boundaries negotiated in the New START treaty. These are an upper boundary of 1,550 deployed warheads, up to 700 deployed ICBMs, deployed SLBMs, and nuclear-capable heavy bombers, and up to 800 deployed and non-deployed ICBM launchers, SLBM launchers, and heavy bombers equipped for nuclear armaments.

Under this treaty, we retain the power and the freedom to determine the composition of our force structure, allowing the United States complete flexibility to deploy, maintain, and modernize our strategic nuclear forces in a manner that best protects our national security interests. DOD has established a baseline force structure to guide our planning, one that does not require changes to current or planned basing arrangements. DOD will retain 240 deployed SLBMs, distributed among 14 submarines, each of which will have 20 launch tubes. This is the most survivable leg of the triad.

Recognizing the need for flexibility in the bomber leg, we will retain up to 60 deployed heavy bombers, including all 18 operational B–2s. Finally, the United States will retain up to 420 deployed single-warhead Minuteman III ICBMs at our current 3 missile bases.

Let me also address some of the things the treaty will not affect. First, as Secretary Clinton has said, the treaty will not constrain the United States from deploying the most effective missile defenses possible, nor impose additional costs or barriers on those defenses. I remain confident in the U.S. missile defense program, which has made considerable advancements, including the testing and development of the SM–3 missile, which we will deploy in Europe.

As the administration's ballistic missile defense review and budget plans make clear, the United States will continue to improve our capability to defend ourselves, our deployed forces, and our allies and partners against ballistic missile threats. As Secretary Clinton has pointed out, our request for missile defense in the 2011 budget

is $700 million over the enacted fiscal year 2010 number, and we are looking at an increase beyond that of potentially up to another billion dollars for fiscal year 2012. We have made all of this clear to the Russians in a unilateral statement made in connection with the treaty.

It is not surprising that Russia continues to object to our missile defense program, as they have objected to all U.S. missile defense efforts for decades. The Russians know that our missile defenses are designed to intercept a limited number of ballistic missiles launched by a country such as Iran or North Korea. Our missile defenses do not have the capability to defend against the Russian Federation's large advanced arsenal. Consequently, U.S. missile defenses do not and will not affect Russia's strategic deterrent. To build such a capability, a missile shield of the kind envisioned in the 1980s, is technologically unfeasible, cost prohibitive, and destabilizing. Therefore, we have no plans to do so.

Separately from the treaty, we are discussing missile defense cooperation with Russia, which we believe is in the interests of both nations. But such talks have nothing to do with imposing any limitations on our programs or deployment plans.

Furthermore, the New START does not restrict our ability to develop and deploy conventional prompt global strike capabilities that could attack targets anywhere on the globe in an hour or less. The treaty's limit of 700 deployed delivery vehicles combined with the ceiling of 1,550 deployed warheads accommodates the limited number of conventional warheads we may need for this capability. We are also concurrently examining potential future prompt global strike systems that would not be limited by this treaty.

In my view, a key contribution of this treaty is its provision for a strong verification regime. While the Intelligence Community will provide a detailed classified assessment, I would like to emphasize some of the key elements of this regime, which will monitor Russia's compliance with the treaty while also providing important insights into the size and composition of Russian strategic forces.

The treaty allows each party to conduct up to 18 on-site inspections each year at operating bases for ICBMs, ballistic missile submarines (SSBNs), and nuclear-capable heavy bombers, as well as storage facilities, test ranges, and conversion and elimination facilities. The agreement establishes a database, updated every 6 months, which will help provide the United States with a rolling overall picture of Russia's strategic offensive forces. Unique identifiers for the first time will be assigned to each ICBM, SLBM, and nuclear-capable heavy bomber, allowing us to track accountable systems throughout their life cycle. The treaty provides for non-interference with national technical means of verification, such as reconnaissance satellites, ground stations, and ships. While telemetry is not needed to verify the provisions of this treaty, the terms nonetheless call for exchange of telemetry on up to five launches per year from each side.

I'm confident that the New START will in no way compromise America's nuclear deterrent. Maintaining a credible deterrent requires an adequate stockpile of safe, secure, and reliable nuclear warheads. This calls for a reinvigoration of our nuclear weapons complex, that is our infrastructure and our science, technology, and

engineering base. I might just add, I've been up here for the last four springs trying to get money for this, and this is the first time I think I have a fair shot of actually getting money for our nuclear arsenal.

To this end, DOD is transferring $4.6 billion to the Department of Energy's (DOE) NNSA through fiscal year 2015. This transfer will assist in funding critical nuclear weapons life extension programs (LEPs) and efforts to modernize the nuclear weapons infrastructure.

The initial applications of this funding, along with an additional $1.1 billion being transferred for naval nuclear reactors, are reflected in the President's 2011 budget request, which I urge Congress to approve.

These investments in the NPR for warhead life extension represent a credible modernization plan to sustain the nuclear infrastructure and support our Nation's deterrent.

Let me close with a final personal observation. I first began working on strategic arms control with the Russians in 1970, 40 years ago, on a U.S. effort that led to the first Strategic Arms Limitation Agreement with Moscow 2 years later. The key question then and in the decades since has always been the same: Is the United States better off with a strategic arms agreement with the Russians or without it? The answer for successive presidents, as Secretary Clinton has said, of both parties has always been with an agreement. The U.S. Senate has always agreed. The same answer holds true for New START. The United States is better off with this treaty than without it, and I'm confident that it is the right agreement for today and for the future. It increases stability and predictability, allows us to sustain a strong nuclear triad, preserves our flexibility to deploy the nuclear and non-nuclear capabilities needed for effective deterrence and defense.

In light of all these factors, I urge the Senate to give its advice and consent to ratification of the new treaty.

[The prepared statement of Secretary Gates follows:]

PREPARED STATEMENT BY HON. ROBERT M. GATES

Mr. Chairman, Senator McCain, members of the committee:

Thank you for the opportunity to speak today regarding the new Strategic Arms Reduction Treaty between the United States and Russia—an agreement that reduces the strategic nuclear forces of our two nations in a manner that strengthens the stability of our relationship and protects the security of the American people.

America's nuclear arsenal remains a vital pillar of our national security, deterring potential adversaries and reassuring allies and partners. As such, the first step of the year-long Nuclear Posture Review was an extensive analysis which, among other things, determined how many nuclear delivery vehicles and deployed warheads were needed. This in turn provided the basis for our negotiations of New START. The results of those studies give me confidence that the Department of Defense will be able to maintain a strong and effective nuclear deterrent while modernizing our weapons to ensure that they are safe, secure and reliable, all within the limits of the new treaty.

The U.S. strategic nuclear deterrent will continue to be based on the triad of delivery systems—intercontinental ballistic missiles, submarine-launched ballistic missiles, and nuclear-capable heavy bombers—within the boundaries negotiated in the New START treaty.

Those are:

- An upper boundary of 1,550 deployed warheads;
- Up to 700 deployed ICBMs, deployed SLBMs and nuclear-capable heavy bombers; and

- Up to 800 deployed and nondeployed ICBM launchers, SLBM launchers, and heavy bombers equipped for nuclear armaments.

Under this treaty, we retain the power to determine the composition of our force structure, allowing the United States complete flexibility to deploy, maintain and modernize our strategic nuclear forces in a manner that best protects our national security interests. The Defense Department has established a baseline force structure to guide our planning, one that does not require changes to current or planned basing arrangements.

- The department will retain 240 deployed submarine-launched ballistic missiles, distributed among 14 submarines, each of which will have 20 launch tubes. This is the most survivable leg of the triad.
- Recognizing the need for flexibility in the bomber leg, we will retain up to 60 deployed heavy bombers, including all 18 operational B–2s.
- Finally, the United States will retain up to 420 deployed single-warhead Minuteman III ICBMs at our current 3 missiles bases.

Let me also address some of the things that the New START treaty will not affect.

First, the treaty will not constrain the United States from deploying the most effective missile defenses possible, nor impose additional costs or barriers on those defenses. I remain confident in the U.S. missile defense program, which has made considerable advancements, including the testing and development of the SM–3 missile, which we will deploy in Europe.

As the administration's Ballistic Missile Defense Review and budget plans make clear, the United States will continue to improve our capability to defend ourselves, our deployed forces and our allies and partners against ballistic missile threats. We made this clear to the Russians in a unilateral statement made in connection with the treaty.

It is not surprising that Russia continues to object to our missile defense program as they have objected to all U.S. missile defense efforts for several decades. The Russians know that our missile defenses are designed to intercept a limited number of ballistic missiles launched by a country such as Iran or North Korea. Our missile defenses do not have the capability to defend against the Russian Federation's large, advanced arsenal. Consequentially, U.S. missile defenses do not, and will not, affect Russia's strategic deterrent. To build such a capability—a missile shield of the kind envisioned in the 1980s—is technologically unfeasible, cost prohibitive, and destabilizing. Therefore we have no plans to do so. Separately from the treaty, we are discussing missile defense cooperation with Russia, which we believe is in the interest of both nations.

Furthermore, the New START treaty does not restrict our ability to develop and deploy conventional prompt global strike capabilities that could attack targets anywhere on the globe in an hour or less. The treaty's limit of 700 deployed delivery vehicles, combined with the ceiling of 1,550 deployed warheads, accommodates the limited number of conventional warheads we may need for this capability. We are also currently examining potential future prompt global strike systems that would not be limited by this treaty.

In my view, a key contribution of this treaty is its provision for a strong verification regime. While the Intelligence Community will provide a detailed classified assessment, I would like to emphasize some of the key elements of this regime, which will monitor Russia's compliance with the treaty while also providing important insights into the size and composition of Russian strategic forces.

- The treaty allows each party to conduct up to 18 on-site inspections each year at operating bases for ICBMs, SSBNs and nuclear-capable heavy bombers, as well as storage facilities, test ranges and conversion and elimination facilities.
- The agreement establishes a database, updated every 6 months, which will help provide the United States with a rolling overall picture of Russia's strategic offensive forces.
- Unique identifiers for the first time will be assigned to each ICBM, SLBM and nuclear-capable heavy bomber, allowing us to track accountable systems throughout their life cycles.
- The treaty provides for noninterference with national technical means of verification such as reconnaissance satellites, ground stations and ships.
- While telemetry is not needed to verify the provisions of this treaty, the terms nonetheless call for the exchange of telemetry on up to five launches per year, for each side.

I am confident that the New START treaty will in no way compromise America's nuclear deterrent. Maintaining a credible deterrent requires an adequate stockpile of safe, secure and reliable nuclear warheads. This calls for a reinvigoration of our

nuclear weapons complex—that is, our infrastructure and our science, technology and engineering base.

To this end, the Department of Defense is transferring $4.6 billion to the Department of Energy's National Nuclear Security Administration through fiscal year 2015. This transfer will assist in funding critical nuclear weapons life-extension programs and efforts to modernize the nuclear weapons infrastructure. The initial applications of this funding along with an additional $1.1 billion being transferred for naval nuclear reactors are reflected in the President's fiscal year 2011 budget request, which I urge Congress to approve. These investments and the Nuclear Posture Review strategy for warhead life extension represent a credible modernization plan to sustain the nuclear infrastructure and support our Nation's deterrent.

I would close with a final observation. I first began working on strategic arms control with the Russians in 1970, 40 years ago, a U.S. effort that led to the first strategic arms limitation agreement with Moscow 2 years later. The key question then and in the decades since has always been the same: is the United States better off with a strategic arms agreement with the Russians, or without it? The answer for successive presidents of both parties has always been, with an agreement. The U.S. Senate has always agreed, approving each treaty by lopsided bipartisan margins.

The same answer holds true for New START. The United States is better off with this treaty than without it, and I am confident that it is the right agreement for today and for the future. It increases stability and predictability, allows us to sustain a strong nuclear triad, and preserves our flexibility to deploy the nuclear and non-nuclear capabilities needed for effective deterrence and defense.

In light of all these factors, I urge the Senate to give its advice and consent to ratification on the new treaty.

Chairman LEVIN. Thank you very much, Secretary Gates.

Secretary Chu.

STATEMENT OF HON. STEVEN CHU, SECRETARY OF ENERGY

Secretary CHU. Chairman Levin, Ranking Member McCain, and members of the committee, thank you for the opportunity to testify on the New START. New START is an important part of President Obama's nuclear security agenda. If ratified and entered into force, the treaty will commit the United States and the Russian Federation to lower levels of deployed strategic nuclear weapons in a transparent and verifiable way. This will increase stability between our countries while demonstrating our joint commitment to the NPT.

Secretary Clinton, Secretary Gates, and Admiral Mullen are testifying to the diplomatic and security advantages of this treaty. I want to focus on how it will allow us to continue to modernize our nuclear security enterprise and to maintain scientific capabilities that ensure the safety, security, and effectiveness of our nuclear deterrent.

The successes of our nuclear programs depend on the incredible technical capabilities at DOE's national laboratories. Our capabilities enable us to assess the stockpile annually, to extend nuclear weapon lifetimes, to assess other nations' nuclear capabilities, and to dismantle retired weapons. As the stockpile decreases in size, the role of science, technology, and engineering in deterrence will increase in importance.

The New START will enhance, not harm, our ability to maintain the safety, security, and effectiveness of our nuclear weapons stockpile. This conclusion is based on three important considerations. First, the treaty supports our modernization agenda. Yesterday, I delivered a detailed stockpile stewardship and management plan that provides a multi-decade investment strategy needed to extend the life of key nuclear weapons systems, rebuild and modernize our facilities, and provide for the necessary physical and intellectual in-

frastructure. These modernization efforts provide a strong foundation for the limits on deployed nuclear weapons under the New START, and nothing in the treaty will constrain these efforts. None of DOE's sites will be subject to inspection under the New START and none of our operations will be subject to limitation. We will be able to maintain and improve the scientific base of our nuclear weapons activities.

Second, the United States will remain free to determine the size of its inactive stockpile. The weapons in the inactive stockpile will continue to be retired and dismantled consistent with DOD's requirements and presidential direction, and we remain on track to meet our program's requirement to dismantle all the retired warheads currently in the dismantlement queue by 2022. Nothing in this treaty imposes any restrictions on this work.

Third, the treaty provides the explicit right of both parties to determine the composition and structure of their nuclear forces within the treaty's overall limits. Further, the New START contains no limitations that could constrain our warhead LEP options or work to assess and correct any future warhead issue. As was made clear in the NPR, this administration is committed to studying all options available for future LEPs, including reuse, refurbishment, and replacement on a case by case basis.

We are committed to fully funding the ongoing LEP for the W76 submarine-based warhead for completion in 2017 and for the full scope LEP study and follow-on activities for the B61 bomb to ensure first production begins in 2017. We will also participate in the Nuclear Weapons Council on a study of the LEP options for the W78 ICBM warhead. The New START does not place any limits on any of these programs.

I believe these factors point to a treaty that enhances U.S. national security without jeopardizing the nuclear deterrent that helps underwrite it. As you consider this treaty, you can be certain that the Nation's nuclear stockpile will remain safe, secure, and effective. To modernize our enterprise, we are investing in science, technology, and engineering. The President's fiscal year 2011 budget request would increase science funding in the NNSA by more than 10 percent. We are investing in the infrastructure we need. The highest infrastructure priorities are the construction of major new nuclear facilities for plutonium and uranium. We are investing in human capital and creating an environment that can attract highly trained and motivated personnel.

I should also depart and say that these personnel, over 150 of them, for over 40 days and in large part 40 nights have been turning their attention to the Gulf spill, and it's been remarkable to see that work.

We have begun this work already, but it will take sustained leadership from this Congress to see it through. The President's fiscal year 2011 budget request reflects a 13 percent increase over fiscal year 2010 and includes more than $7 billion for weapons activities and infrastructure. Over the course of the next decade, our plans call for an investment of $80 billion. With Congress' support, we will transform from a Cold War capacity-based infrastructure to a modern capabilities-based nuclear security enterprise. This will provide the confidence and the tools that allow the United States

to consider further nuclear reductions as we work toward a world without nuclear weapons.

Thank you and I look forward to your questions.

[The prepared statement of Secretary Chu follows:]

PREPARED STATEMENT BY HON. STEVEN CHU

Chairman Levin, Ranking Member McCain, and members of the committee, thank you for the opportunity to testify on the treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, known as "New START."

In Prague last April, President Obama outlined a comprehensive agenda for addressing nuclear dangers in the 21st century. He pledged to take concrete steps toward a world without nuclear weapons, while maintaining the safety, security, and effectiveness of our arsenal as long as nuclear weapons exist. The President has called for reducing the role of nuclear weapons in our national security strategy and for building a new international framework for civil nuclear cooperation, and he has promised to lead an international effort to secure all vulnerable nuclear material around the world within 4 years.

Building on that commitment, the President's Nuclear Posture Review put preventing the spread of nuclear weapons to terrorists and to states that don't already possess them at the very top of our national security agenda. The danger of a nuclear weapon falling into the wrong hands is the greatest threat facing the American people. The President has laid out an unprecedented commitment to taking real, practical and clear-eyed steps to keep the American people safe.

The New START treaty is an important part of this nuclear security agenda. If ratified and entered into force, the treaty will commit the United States and Russian Federation to lower levels of deployed strategic nuclear weapons in a transparent and verifiable manner. This will increase stability between our countries while demonstrating our joint commitment to the Nuclear Nonproliferation Treaty.

Secretary Clinton, Secretary Gates, and Admiral Mullen are testifying to the diplomatic and security advantages of this treaty. I want to focus on how this treaty will allow the United States to continue to modernize our nuclear security enterprise and to maintain the scientific capabilities that ensure the safety, security, and effectiveness of our nuclear deterrent.

The success of our nuclear programs depends upon the incredible technical capabilities at the Department of Energy's national laboratories. We are proud to employ some of our Nation's brightest minds and to be home to some of the world's most sophisticated scientific equipment. This equipment includes the world's fastest supercomputers and the ability to conduct the most advanced investigations of self-sustained nuclear reactions at the National Ignition Facility.

Our capabilities enable us to assess the stockpile annually, to extend nuclear weapon lifetimes, to assess other nations' nuclear capabilities, and to dismantle retired weapons. As the stockpile decreases in size, the role of science, technology and engineering in deterrence will increase in importance.

The New START will enhance, not harm, our ability to maintain the safety, security, and effectiveness of our nuclear weapons stockpile. This conclusion is based on three important considerations:

First, the treaty supports our modernization agenda. The Nuclear Posture Review recognizes the importance of supporting "a modern physical infrastructure—comprised of the national security laboratories and a complex of supporting facilities—and a highly capable workforce with the specialized skills needed to sustain the deterrent." This month, I am delivering a detailed plan to Congress for transforming today's nuclear weapons complex into a modern, efficient and responsive 21st century Nuclear Security Enterprise. This Stockpile Stewardship and Management Plan provides the multi-decade investment strategy needed to extend the life of key nuclear weapon systems, rebuild and modernize our facilities, and provide for necessary physical and intellectual infrastructure.

These modernization efforts provide a strong foundation for the limits on deployed nuclear weapons under the New START treaty, and nothing in the treaty will constrain these efforts. None of the Department of Energy's NNSA sites—including our production and national laboratory facilities—will be subject to inspection under the New START treaty, and none of our operations will be subject to limitation. We will be able to maintain and improve the scientific base of our nuclear weapons activities.

Second, the United States will remain free to determine the size of the inactive stockpile. This inactive stockpile supports stockpile maintenance, surveillance and

life extension activities, including component reuse. It is an important technical and geopolitical hedge.

The weapons in the inactive stockpile will continue to be retired and dismantled consistent with Department of Defense requirements and Presidential direction, and we remain on track to meet our program requirement to dismantle all the retired warheads currently in the dismantlement queue by 2022. Nothing in this treaty imposes any restrictions on this work.

Third, the treaty provides the explicit right of both parties to determine the composition and structure of their nuclear forces within the treaty's overall limits. This means that, should a problem arise with a particular warhead type, we will have complete flexibility to restructure our deployments and upload weapons to other systems if necessary to compensate and ensure the sustainment of an effective deterrent.

Further, the New START treaty contains no limitations that would constrain our warhead life extension program (LEP) options, or the work to assess and correct any potential future warhead issue. The New START treaty will have no impact on any decisions regarding warhead life extension.

As was made clear in the Nuclear Posture Review (NPR), this administration is committed to studying all of the options available for future LEPs—including reuse, refurbishment, and replacement—on a case-by-case basis. This approach has been endorsed by the Directors of our three National Nuclear Security Administration (NNSA) laboratories, who said, "The approach outlined in the NPR, which excludes further nuclear testing and includes the consideration of the full range of life extension options . . . provides the necessary technical flexibility to manage the nuclear stockpile into the future with an acceptable level of risk."

These decisions will be based on U.S. national security and stockpile requirements, informed by our best scientific judgment and consistent with the guidance contained in the Nuclear Posture Review and the plans outlined in the Stockpile Stewardship and Management Plan. Nothing in the New START treaty would limit those options in any way.

We are committed to fully funding the ongoing LEP for the W76 submarine-based warhead for completion in 2017, and the full scope LEP study and follow-on activities for the B61 bomb to ensure first production begins in 2017. We will also participate with the Nuclear Weapons Council on a study of LEP options for the W78 ICBM warhead. The New START treaty does not place any limits on any of those programs.

I believe these factors point to a treaty that enhances U.S. national security without jeopardizing the nuclear deterrent that helps underwrite it.

As you consider this treaty, you can be certain that the Nation's nuclear stockpile will remain safe, secure, and effective. I want to take a few minutes to elaborate on some of the steps the Department of Energy and the NNSA are taking to modernize our enterprise.

- We are investing in science, technology, and engineering. The Nuclear Posture Review concluded that we need increased investments to strengthen an aging physical infrastructure and to sustain scientific and technical talent at our Nation's national security laboratories. This will allow us to continue to assess and certify the stockpile without underground nuclear testing utilizing advanced scientific capabilities. The President's fiscal year 2011 budget request would increase science funding at NNSA by more than 10 percent.
- We are investing in the infrastructure we need. A successful stockpile stewardship and management program requires a modernized infrastructure, including major long-term construction projects. The highest infrastructure priorities are the construction of major new nuclear facilities for plutonium and uranium. As Administrator Tom D'Agostino and I have stated, we must replace outdated 1950s-era facilities with modern, efficient, cost-effective, and properly-sized facilities.
- We are investing in human capital. World-class laboratories and production plants are sustained by the best and brightest minds. Through the renewed sense of urgency reflected in the President's April 2009 Prague speech and through the very challenging technical program that includes LEPs and with national security challenges beyond directed stockpile work, we are creating an environment that can attract highly-trained and motivated personnel. We must bring new scientists and engineers into this field.

We have begun this work already, but it will take sustained leadership from this Congress to see it through. The President's fiscal year 2011 budget request reflects a 13 percent increase over fiscal year 2010 and includes more than $7 billion for

weapons activities and infrastructure. The National Nuclear Security Administration's Future Years Nuclear Security Program budget includes more than $36 billion for these activities over the next 5 years. Over the course of the next decade, our plans call for the investment of $80 billion.

With Congress' support, we will transform from a Cold War capacity-based infrastructure to a modern, capabilities-based Nuclear Security Enterprise. This will provide the confidence and the tools to allow the United States to consider further nuclear weapons reductions as we work toward a world without nuclear weapons.

In conclusion, the New START treaty will serve the interests of the United States without jeopardizing our ability to sustain the safety, security and effectiveness of the U.S. nuclear weapons stockpile. Irrespective of the treaty, we need to invest in modernizing our enterprise and extending the life of the nuclear weapons stockpile, but we are up to this task. Together, we will ensure our ability to retain a safe, secure, and effective nuclear deterrent for as long as nuclear weapons exist.

Thank you, and I look forward to answering your questions.

Chairman LEVIN. Thank you very much, Secretary Chu.

Admiral Mullen.

STATEMENT OF ADM MICHAEL G. MULLEN, USN, CHAIRMAN OF THE JOINT CHIEFS OF STAFF

Admiral MULLEN. Chairman Levin, Senator McCain, and distinguished members of the committee, I am pleased to add my voice in support of ratification of the New START and to do so as soon as possible. We are in our 7th month without a treaty with Russia.

This treaty has the full support of your uniformed military. Throughout its negotiations, Secretaries Clinton and Gates ensured that professional military perspectives were thoroughly considered. During the development of the New START, I was personally involved, to include two face-to-face negotiating sessions and several conversations, other conversations with my counterpart, the chief of the Russian general staff, General Makarov, regarding key aspects of the treaty.

The Joint Chiefs and I also had time to review the analytic work done in the NPR regarding the shape of future U.S. strategic nuclear forces. Its recommendations were transmitted as guidance to the negotiating team in Geneva regarding the three central limits on strategic systems and the warheads associated with them that are contained in the treaty.

In short, the conclusion and implementation of the New START is the right thing for us to do, and we took the time to do it right. The chiefs and I believe the New START achieves important and necessary balance between three critical aims. It allows us to retain a strong and flexible American nuclear deterrent. It helps strengthen openness and transparency in our relationship with Russia. It also demonstrates our national commitment to reducing the worldwide risk of a nuclear incident resulting from the continuing proliferation of nuclear weapons.

I firmly believe that the central limits established in this treaty and the provision that allows each side the freedom to determine its own force mix provides us with the necessary flexibility to field the right future force to meet the Nation's needs. We plan to retain our triad of bombers, SSBNs, and land-based ICBMs in sufficient diversity and numbers to assure strategic stability between ourselves and the Russian Federation. We will also maintain sufficient capability to deter other nuclear states.

In addition, the agreement provides for an array of important verification measures that are critical to both sides in monitoring

compliance with the new treaty, and those have been spoken to in earlier statements.

This treaty is also a critical element in the President's agenda for reducing nuclear risks to the United States, our allies, and partners and the wider international community. Our recently concluded NPR acknowledges the continuing role for nuclear weapons in the defense of America, while placing additional emphasis on positive steps to prevent nuclear terrorism and the risks from nuclear proliferation.

In summary, this New START agreement is important in itself and should also be viewed in a wider context. It makes meaningful reductions in the U.S. and Russian strategic nuclear arsenals while strengthening strategic stability and the United States' national security. Coupled with the administration's clear commitment to prudently invest in our aging nuclear infrastructure and in warhead life extension programs, this treaty is a very meaningful step forward. I encourage the Senate to fully study the treaty. I believe you will see the wisdom of ratifying it, and I sit before you today recommending that you do so.

Thank you, sir.

[The prepared statement of Admiral Mullen follows:]

PREPARED STATEMENT BY ADM MICHAEL G. MULLEN, USN

Chairman Levin, Senator McCain, distinguished members of the committee; I am pleased to add my voice in support for ratification of the New Strategic Arms Reduction Treaty (START) treaty.

This treaty has the full support of your uniformed military. Throughout its negotiation, Secretaries Clinton and Gates ensured that professional military perspectives were thoroughly considered. During the development of the New START treaty I was personally involved, to include two face-to-face negotiating sessions and three telephone conversations with my counterpart, the Chief of the Russian General Staff, General Makarov, regarding key aspects of the treaty.

The Joint Chiefs and I also had time to review the analytic work done in the Nuclear Posture Review (NPR) regarding the shape of future U.S. strategic nuclear forces. Its recommendations were transmitted as guidance to the negotiating team in Geneva regarding the three central limits on strategic systems and the warheads associated with them that are contained in the treaty. In short, the conclusion and implementation of the New START treaty is the right thing for us to do—and we took the time to do it right.

The Chiefs and I believe the New START treaty achieves important and necessary balance between three critical aims. It allows us to retain a strong and flexible American nuclear deterrent. It helps strengthen openness and transparency in our relationship with Russia. It also demonstrates our national commitment to reducing the worldwide risk of nuclear incident resulting from the continuing proliferation of nuclear weapons.

You should know that I firmly believe that the central limits established in this treaty and the provision that allows each side the freedom to determine its own force mix provides us with the necessary flexibility to field the right future force to meet the Nation's needs. We plan to retain our Triad of bombers, ballistic missile submarines and land-based intercontinental ballistic missiles in sufficient diversity and numbers to assure strategic stability between ourselves and the Russian Federation. We will also maintain sufficient capability to deter other nuclear states. In addition, the agreement provides for an array of important verification measures that are critical to both sides in monitoring compliance with the new treaty.

This treaty is also a critical element in the President's agenda for reducing nuclear risks to the United States, our allies and partners, and the wider international community. Our recently concluded NPR acknowledges the continuing role for nuclear weapons in the defense of America, while placing additional emphasis on positive steps to prevent nuclear terrorism and the risks from nuclear proliferation.

In summary, this New START agreement is important in itself, and should also be viewed in wider context. It makes meaningful reductions in the U.S. and Russian strategic nuclear arsenals while strengthening strategic stability and U.S. national

security. Coupled with the administration's clear commitment to prudently invest in our aging nuclear infrastructure and in nuclear warhead life extension programs, this treaty is a very meaningful step forward. I encourage the Senate to fully study the treaty. I believe you will see the wisdom of ratifying it, and I sit before you today recommending that you do so.

Chairman LEVIN. Thank you very much, Admiral Mullen.

Because of the large number of Senators that are here this morning and because Secretary Gates must leave a few minutes after 11:30 a.m., we're going to having a first round of questioning that's going to be limited to 5 minutes, and then if there are additional questions and there's time after that first round, we will try to have a second round, which might be a few minutes each.

Secretary Clinton, let me start with you. During the course of the negotiations on the New START, were there any side agreements, any informal agreements, any secret agreements with Russia that are not included in the treaty relative to any limitations on U.S. missile defenses or any other subject?

Secretary CLINTON. No.

Chairman LEVIN. Let me ask this of Secretary Gates. Article 5, paragraph 3, of the treaty would prohibit the future conversion of ICBM silos or SLBM launchers to be used for missile defense interceptors, and vice versa. Now, you've testified, I believe, that—I think Secretary Clinton testified perhaps, maybe you did too—we have no plans to do such conversions and that it would not make any sense to do so because the cost is greater than a new silo for the purpose of missile defense.

But there's also a larger issue of the potential misunderstanding or miscalculation, it seems to me, if either side could use silos of one type for the other purpose. Would you agree, Mr. Secretary, that it could be potentially destabilizing and dangerous if either side were to launch missile defense interceptors from ICBM silos or from SSBNs because such launches could appear to the other side to be launches of ICBMs or SLBMs?

Secretary GATES. First, I would like to just reinforce Secretary Clinton's testimony to the effect that not only did we not have any plans currently to transform or convert ICBM silos into missile defense silos; as you said, it doesn't make any sense from a financial standpoint. It's a lot cheaper to build missile defense silos on their own, as we are doing at Fort Greeley, AK.

Yes, I think it would be destabilizing if you didn't know what was coming out of a missile silo. I think this is one of the challenges, frankly, that we face as we go forward with conventional prompt global strike. Any of these things that are confusing to a party on the other side, I think, needs to be dealt with very carefully.

Chairman LEVIN. You made a very brief reference in that comment to what we're planning to build at Fort Greeley in Alaska. I believe that reference is to the plans to build eight spare silos there. Does that not make it clear, even more clear than I think it already is, that there is no constraint on our ability to build those missile defense silos or even more if needed?

Secretary GATES. Yes. We are not only building out the second site at Fort Greeley, but then there will be eight spare silos once that work is complete.

Chairman LEVIN. Admiral, let me ask you a question about the verification issues. We don't yet have a national intelligence estimate on verification under New START, but is it your judgment that this treaty is verifiable? Was the Intelligence Community involved during these negotiations?

Admiral MULLEN. Yes, sir, the Intelligence Community was involved throughout, both obviously internally in our discussions, as well as in our negotiations with the Russians. It is my judgment that this treaty provides the necessary means to adequately verify, consistent with previous treaties, even though some of the verification means are different. Secretary Gates pointed out the numbers of inspections. Something that is very specifically different is the agreement in the treaty to put unique identifiers on every single weapon. Clearly, it continues to support the national technical means and an ability to verify.

Speaking specifically of telemetry, while not required, the agreement also included the exchange of telemetry on up to five launch missile tests or launches every year. In totality, I'm very comfortable with the verification regime that exists in the treaty right now.

Chairman LEVIN. As a matter of fact, is there not a concern from an intelligence perspective as to the status quo; that there are no verification provisions that currently exist, and there are no inspections that currently exist without this treaty?

Admiral MULLEN. Absolutely, absolutely. As I said, we're in our 7th month right now with no treaty with the Russians. I will just reemphasize what Secretary Gates said, that we are much better, in my view, with it than without it.

Chairman LEVIN. Including from a verification perspective?

Admiral MULLEN. Yes, sir.

Chairman LEVIN. Thank you very much.

Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

I thank the witnesses. Secretary Clinton, I understand we've yet to receive requested data on Russian compliance and verification since 2005. When do we expect that data to be available to the Senate?

Secretary CLINTON. Senator McCain, that will be available shortly. We are moving as quickly as possible. I know how important that is for your consideration, and we will get it to you very shortly.

Senator MCCAIN. Thank you.

Both you and Secretary Gates have talked about Article 5, that it would never be considered, that it would not be something that we would ever plan on. Why is it in the treaty then?

Secretary CLINTON. Well, it's in the treaty in effect, I would argue, Senator, because there have been longstanding discussions between the Russians and the United States that arose during the implementation of START I. Specifically, there were questions asked about whether or not these silos that cover the countryside in many of our States, that are no longer operative, were going to be converted. We said no; we had no intention of continuing with the conversion, and this would now be no longer a subject of continuing contention or discussion.

It seemed to us to be a smart negotiating decision to put something in that frankly we never intended to pursue. There were a number of issues that were very, very difficult to resolve in this treaty. Just mentioning two of them, the kind of verification, along with the numbers of visits and telemetry. In the course of the negotiation, to state that we're not going to do something we're not going to do seemed to be an appropriate position for us to take.

Senator MCCAIN. If we were going to state in a treaty everything we were not going to do, it could be a very heavy document.

Here's my fundamental dilemma that I think many of us face. At the time of the signing of the treaty, the statement was made by the Russians, "This treaty between the Russian Federation and the United States of America signed at Prague on April 8, 2010, may be effective and viable only in condition where there is no qualititative or quantitative buildup in the missile defense system capabilities of the United States of America."

That is a strong statement at the time of the signing of the treaty.

Then President Medvedev made the statement on April 12, in an interview with George Stephanopoulos, where he said the two countries negotiated a formula in the preamble of the New START that states there is "an interconnection between the strategic offensive arms and missile defense. So if these circumstances will change, then we will consider it is a reason to jeopardize the whole agreement." That's what President Medvedev said.

Foreign Minister Sergei Lavrov said on March 30 in a press conference after the G–8 foreign ministers meeting in Canada that there are obligations regarding missile defense in the treaty text and the accompanying interpretive text that constitute "a legally binding package," et cetera.

Now, I, for one, am going to have to get some kind of statement from the Russians as to exactly what this treaty means in their view. If the statement, the signing statement at the time that states there's an interconnection between this treaty and missile defense systems, that clearly states that "only in condition that there is no qualitative or quantitative buildup in the missile defense capabilities of the United States of America," that's a pretty clear statement.

President Medvedev has made the same statement. Foreign Minister Lavrov has made the same statement. So Russian leadership have all made the statement that this treaty is contingent upon the United States not changing or undertaking qualitative or quantitative buildup in missile defense systems. That's bound to be worrisome to anyone, particularly in light of the decision that was made concerning the Polish and Czech missile defense systems' cancellation or replacement with another system that was done earlier in this administration.

It's clear from many statements that Russian leadership has made that there is a very different interpretation of this treaty from what has been stated here concerning the connection to missile defense systems and that of the Russians. I'd be more than happy to hear your response.

Thank you, Mr. Chairman.

Secretary CLINTON. Well, Senator, thank you for giving us the opportunity to respond. Let me start by saying that historically there have been these kinds of unilateral statements made by the Russians. In fact, in connection with the signing of the original START, the Russians made similar statements that it would consider U.S. withdrawal from the Antiballistic Missile (ABM) Treaty as sufficient grounds for its withdrawal from START. However, when the United States withdrew from the ABM Treaty in 2001, the Russia Federation, as the successor to the Soviet Union, did not withdraw.

Second, these unilateral statements have no binding effect, no legal effect. The agreement that Presidents Obama and Medvedev signed is the treaty.

Third, as with many other arms control treaties, it provides that either party, including obviously us, may withdraw from the treaty if that party decides that extraordinary events have jeopardized its security interests. Now, the Russian unilateral statement merely reflects its current view that they disagree, as we've heard for years, with our commitment to building up missile defense system capabilities.

It is not in any way affecting us by undermining that commitment. We remain committed, as you heard, in word and deed, most particularly in financial ways.

Finally, what we read from President Medvedev in an April statement—I'm not sure it's exactly the same one that you quoted from—when asked about the unilateral statements, said, "That doesn't mean that because of this, if the American side starts to build up the missile defense, statement that the treaty would automatically lose its power."

Then he went on to say, "I would like to make sure that there is no impression that any change in the U.S. missile defense system would be a reason to abandon a signed agreement."

I view the unilateral statement—and we have one of our own, which is now in the record—as really a kind of press release, if you will. Here's our position, but we just signed a treaty which, as even the President of the Russian Federation says, is truly the agreement that we're going to be following.

I understand the question, but I think that both historically and substantively and then even in the words of President Medvedev, this is not an issue that in any way constrains or limits our commitment to missile defense.

Secretary GATES. I would just make two very quick comments. First, to reinforce the point, the Russians can say what they want. If it's not in the treaty, it's not binding on the United States.

Second, what's interesting is, even in their own unilateral statement, they hedged because, at the end of the statement, they say about the buildup in missile defense capabilities, "such that it would give rise to a threat to the strategic nuclear force potential of the Russian Federation." I said in my opening statement that we have no intention of creating such a capability that would threaten the strategic deterrent capability of the Russia rocket forces, so even they basically gave themselves an out.

Senator MCCAIN. Of course, that's in the eye of the beholder. We obviously have a situation here where the official statement of the

Russian Government states unequivocally, and follow-up statements by members of the Russian Government, that this treaty would be directly affected "only in conditions where there is no qualitative or quantitative buildup in the missile defense system capabilities of the United States of America."

It is at best an ambiguous situation.

I thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator McCain.

Senator Lieberman.

Senator LIEBERMAN. Thanks, Mr. Chairman, and thanks to all of you for being here.

Let me begin with this statement. My own feeling is that if this New START is ratified, it will be a small step forward for mankind, but a long way, I'm sure you'd agree, from the dream that people harbor of having a nuclear-free world. The sad fact is that the current state of international relations, as well as human history, suggests that we're not on the verge of seeing a transformation of human behavior to lead us to a point where we will have a nuclear-free world.

As we take this small step forward in reducing the number of deployed strategic warheads, it of course makes the status of our nuclear stockpile, somewhat smaller as a result of this treaty if it's ratified, even more important. I want to just state the observation that there will be a lot of issues, some already raised here today, about this treaty, but ultimately I think that whether or not the New START is ratified will depend on Members of the Senate of both parties having the confidence that the administration is committed to modernizing our current nuclear stockpile.

As you suggested, Secretary Gates, in an interesting way, in kind of a twist of fate, the ratification of this arms control treaty may actually enable you and the administration and the last administration to receive the funding from Congress that you have been asking for to modernize our current nuclear stockpile.

Let me begin with a baseline question. I assume that you've been asking for this money because you feel that our current nuclear stockpile is aging and in various ways is in need of modernization. Secretary Gates?

Secretary GATES. Let me start and then ask Dr. Chu to chime in. The short answer is yes. This has been an evident need for the United States for some time. We are essentially the only nuclear power in the world that is not carrying out these kinds of modernization programs. We have never claimed to want any new capabilities, but simply to be able to make our weapons safer, more secure, and more reliable.

The Perry-Schlesinger study that was conducted and reported here to Congress really laid out in considerable detail, I think, a lot of the worries that we have, not about our stockpile today, but about where we may be in 5 or 10 years, as both the human capital and the components themselves age, both having to do with these weapons systems. This is a long-term need on the part of the Nation. We've needed it for quite some time.

Congress voted down the Reliable Replacement Warhead program. There has been no progress toward providing any additional funding for our nuclear weapons modernization programs since

that time. I think you've put your finger on it, frankly, and just realistically, I see this treaty as a vehicle to finally be able to get what we need in the way of modernization that we have been unable to get otherwise.

Dr. Chu.

Secretary CHU. I would also add that, although we're not seeking any new military capability, we are seeking to make the weapons safer, more secure, and more reliable. That means we are replacing old electronics that we can't even buy any more: tubes with integrated circuits. We are going to insensitive high explosives, so it's much less likely that an accident, a fire, something of that nature, could set these weapons off. We're increasing the surety, so that, should any terrorists or anybody get hold of these, it would be impossible for them to set them off.

Modernization includes all these factors. We're actually improving the safety, security, and reliability of these weapons. No new military capability, but that's the program we're engaged in.

Senator LIEBERMAN. I appreciate the answer from both of you.

A while ago, when the NPR came out, there was some language in it that indicated there are three means to keep the stockpile secure, reliable, and effective, which were reuse, refurbishment, and replacement. The language in the NPR seemed to make it harder even to replace parts, it sounded like, and I think, in the section 1251 report, which you provided to Congress, you clarified that. I just wanted to ask you two questions.

One is the obvious one, which you've said, Dr. Chu, that there are some parts that can't be reused or refurbished, and you have to replace those parts. While no one is asking for a replacement warhead now, there's nothing in the language in the treaty or in any administration documents that essentially says to the scientists who we rely on here: Don't even think about it. In other words, that the scientists 4 years from now, 6 years from now, if they believe to protect our security we need to build a replacement warhead, that they're going to be free to make that recommendation.

Secretary CHU. That's correct. If you look at the language both in the treaty and in the NPR, the scientists at the national labs are asked to look at all the scientific possibilities within the menu of refurbish, replacement, and new designs. There is something that says, okay, before you go to detailed engineering design, that there's a pause button. But, certainly to look at the scientific capabilities; it would be very prudent to not hold them back on any of those options, and that's the position we're taking.

Senator LIEBERMAN. Thank you. My time is up.

Chairman LEVIN. Thank you very much, Senator Lieberman.

Senator Collins.

Senator COLLINS. Thank you, Mr. Chairman.

Secretary Clinton, you were very clear in answering the chairman's first question about whether there was any secret agreement or side deal associated with the negotiations of the New START that would affect missile defense. You were very clear in saying that, no, there was not.

There's a press report that came out last night that claims that the administration is secretly working with the Russians to con-

clude an agreement that would limit U.S. missile defenses. It goes on to say that the administration last month presented a draft agreement to the Russians. Is this report accurate?

Secretary CLINTON. No. I'm not aware of the report, Senator Collins, but, as Secretary Gates said, we have consistently told the Russians that, if they wish to work with us on missile defense, we are open to working with them. Maybe there is something lost in the translation here because we have consistently reached out to them. We would like them to be part of a broad missile defense system that protects against countries like Iran, North Korea, both of which they border, by the way, so it is in their interest.

But Secretary Gates mentioned that in his opening remarks, so if I could ask him to just perhaps add onto what I said.

Senator COLLINS. Yes.

Secretary GATES. Well, I have just seen a reference to the newspaper story that you described, and what I emphasized, what I added, frankly, in my opening statement was that whatever talks are going on are simply about trying to elicit their willingness to partner with us along with the Europeans in terms of a regional missile defense.

There is nothing in the approaches that have been made to the Russians that in any way, shape, or form would impose any limits whatsoever on our plans.

Senator COLLINS. Thank you.

Secretary Clinton, and perhaps Secretary Gates on this issue as well, one of my chief concerns is that tactical nuclear weapons are not addressed by this treaty. The Perry-Schlesinger commission noted that Russia has some 3,800 tactical nuclear weapons. That's about 10 times what is in our inventory. My concern is not just about the numbers, but study after study has pointed out that tactical nuclear weapons are particularly vulnerable for theft and diversion. The administration's own NPR has noted the fear of nuclear terrorism.

If the administration believes that today's most immediate and extreme danger is nuclear terrorism—and I would agree with that assessment—why doesn't the New START address tactical nuclear weapons at all, since they are by far more vulnerable to theft and diversion?

Secretary CLINTON. Senator, we share your concern. The New START was always intended to replace START I, and that was the decision made by the Bush administration, which we then decided to pursue in order to deal with strategic offensive nuclear forces. But, we share your concern about tactical nuclear weapons, and we have raised with the Russians our desire to begin to talk with them, now that the New START has been negotiated, about tactical nuclear weapons.

We have to do this in conjunction with our NATO allies because, of course, our principal use of tactical nuclear weapons historically has been in Europe, and that's also where most of the Russian tactical nukes are located, close to their border with Europe.

I raised this issue at the last NATO ministerial in Talinn, Estonia, and received a very positive response from our NATO allies, that we will work on our posture toward tactical nukes, because there are some in NATO who wanted NATO unilaterally to begin

to withdraw our own tactical nuclear weapons from Europe, and it's the Obama administration's position that we will not do that, that we will only pursue reductions in our tactical nuclear weapons in concert with cuts in Russia's tactical nuclear weapons. That was well received by the majority of NATO allies.

Secretary GATES. I would just add the personal opinion that I think any negotiation on tactical nuclear weapons with the Russians is going to be a very difficult one, and principally because they have such a disproportionately larger number deployed than we do in Europe, and a lot of them are forward deployed.

I think for the Russians, getting the Russians to agree to anything that ends up providing an equitable status on both sides, if you will, will be a very steep hill to climb. I would just add further that, in terms of our own capabilities, that the F–35, including the aircraft that we're selling to some of our allies, will be dual capable.

Secretary CLINTON. If I could just add one more point, Mr. Chairman. I agree with Secretary Gates that negotiating with the Russians on tactical nuclear weapons will be difficult. But, I would underscore the importance of ratifying the New START to have any chance of us beginning to have a serious negotiation over tactical nuclear weapons. I would add, it's a point that Secretary Gates made earlier: If you look at what we have done in reaching out to our NATO allies, it is to prepare us to be able to have that discussion within the context of our strategic concept review within NATO, so that we can work toward a unified NATO position when we begin having serious discussions with the Russians.

I would underscore the importance of ratifying this treaty in order to have any chance of building the level of exchange with the Russians that could lead to any kind of verifiable limits or reductions.

Senator COLLINS. Thank you.

Chairman LEVIN. Thank you, Senator Collins.

Senator Ben Nelson.

Senator BEN NELSON. Thank you, Mr. Chairman, and thank you to all of you for your service and for being here today.

I wanted to follow up a little bit on Senator Collins' comment and your response about working cooperatively with the Russians in missile defense. In April, I hosted the U.S.-Russian Inter-Parliamentary Group, which is a combination of our U.S. Senate and the Russian Federation Council. Our discussions, like those held in many other meetings both in Moscow as well as here, have involved the discussions about the prospects of missile defense cooperation.

It seemed to be a very strong thought with the Federation Council that they are interested from the parliamentary side, from the legislative side, they're clearly interested in working cooperatively with us on missile defense. Now, I understand they come from their own perspective and we come from ours, but at least they're talking, not only at their executive level with President Medvedev, but now at the legislative side as well. I just thought I would mention that.

I appreciate Senator Collins raising the question, because there are going to be all kinds of rumors and discussions going on and

characterizations of those discussions that are not always as accurate as we would hope that they might be.

Secretary Gates and Secretary Clinton, the question was raised by Senator McCain that relates to an agreement as to whether or not there's a meeting of the minds on this treaty between the Russians and the United States, President Medvedev and President Obama, on the question of what's in the contract. It appears that there's a meeting of the minds within the contract, but some posturing going on outside the contract.

Perhaps it would be helpful for us if you could, if not just today, afterwards, submit something to show that this is nothing new, that there is always posturing around the agreements and there have been instances of posturing in the past, but we entered into agreements and, as you say, even in spite of some of the comments about whether or not we did certain things or didn't do certain things, they might do certain things.

Examples of that might be helpful in putting this to rest because the question seems to be, is there a meeting of the minds? Let me ask you just the question bluntly: Is there a meeting of the minds in your opinion? Senator Clinton or Secretary Gates first?

Secretary GATES. Well, I would just make two comments. First of all, I think that there is a meeting of the minds on the value of New START between the two Presidents. Second point: There is no meeting of the minds on missile defense. The Russians hate it. They've hated it since the late 1960s. They will always hate it, mostly because we'll build it, and they won't.

On the issue before the Senate, if you will, there is a meeting of the minds. On the peripheral issue that is not part of the contract, there is no meeting of the minds.

Senator BEN NELSON. Senator Clinton, can you be quite as candid as that?

Secretary CLINTON. Of course I can.

Senator BEN NELSON. Of course. [Laughter.]

Secretary CLINTON. I think Secretary Gates said it very well. We have an agreement. We have a signed agreement. Somebody can have a signed, enforceable agreement to buy and sell a car or buy and sell a house, and then they can go out and make all sorts of statements, but it has nothing to do with their obligations under the agreement.

The only point I would add to what Secretary Gates has said is that, historically in these agreements, the Russians have said things like that. In my opening testimony, I talked about the original START, where before it was signed the same kind of sequence. The Russians said if the United States pulls out of the ABM Treaty, we're pulling out of START. Well, the United States pulled out of the ABM Treaty in 2001, and Russia didn't pull out of START.

There is a history. We'll be happy to, for the record, give you some additional information.

[The information referred to follows:]

On April 7, 2010, the Russian Federation made a unilateral statement on missile defense, in which the Russian Federation recorded its view that the treaty may be effective and viable only in conditions where there is no qualitative and quantitative build-up in the missile defense system capabilities of the United States. The Russian Federation further noted its position that the "extraordinary events" that could justify withdrawal from the treaty, pursuant to Article XIV, include a build-up in

the missile defense system capabilities of the United States that would give rise to a threat to the strategic nuclear forces potential of the Russian Federation.

The withdrawal standard in Article XIV contains language identical to the withdrawal provisions in many arms control agreements, including the START treaty, the INF Treaty, and the NPT. The withdrawal provision is self-judging in that each party may decide when its supreme interests have been jeopardized by extraordinary events related to the subject matter of the treaty. Accordingly the Russian statement merely records that the circumstances described in its statement would, in its view, justify such a decision on its part. The Russian statement does not change the legal rights or obligations of the Parties under the treaty.

As a historical matter, the Soviet Union made a similar unilateral statement regarding withdrawal from the START treaty. In that statement, the Soviet Union noted its position that the "extraordinary events" in the withdrawal provision included U.S. withdrawal from the ABM Treaty. When the United States withdrew from the ABM Treaty in 2002, however, the Russian Federation (as a successor state to the Soviet Union) did not withdraw from the START treaty.

In sum, the Russian unilateral statement is not an integral part of the treaty and it is not legally binding. The United States did not agree to the Russian statement. It has the same legal status as the unilateral statement made by the Soviet Union in connection with the signing of the original START treaty in 1991.

Secretary CLINTON. But we are very comfortable. I don't think the four of us would be here—and I think you know all of us—telling you how comfortable we are with where we believe the meeting of the minds occurred and what this treaty means, and the fact that, as Admiral Mullen now has said twice in this hearing, we have no treaty, we have no verification going on at this moment. Is it the perfect treaty? I don't know that such a thing exists, but in our very considered opinion, it is so much in America's interest to get on with entering into this treaty.

Senator BEN NELSON. Sort of a reminder of Contracts 101.

Secretary CLINTON. Yes. Well, as an old law professor, I couldn't resist.

The other thing I would say, Senator Nelson, is thank you for participating in these inter-parliamentary activities. I have to confess, when I sat behind the table I was not as aware of the importance to our counterparts that these parliamentary meetings hold. I don't know that we, in our Congress, appreciate the significance of these and the potential opportunities that they offer to us. Thank you.

Senator BEN NELSON. Thank you.

Admiral MULLEN. Senator Nelson, if I can, just briefly back to the meeting of the minds. As I both participated but also watched these negotiations, the number of times that the two countries' leaders personally engaged each other and in the details of this, I thought was extraordinary. To the points that have been made in terms of, within the bounds of the treaty, the meeting of the minds was very evident to me right up to the end, through very difficult negotiations.

Again, the commitment was extraordinary from my perspective in terms of their both understanding, participation, and the negotiations.

Senator BEN NELSON. Thank you very much.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Nelson.

Senator Thune.

Senator THUNE. Thank you, Mr. Chairman.

Secretary Clinton, welcome back to the committee. Secretary Gates, nice to have you. Admiral, thank you for your service. Secretary Chu, welcome to the Armed Services Committee.

Secretary Gates, the administration's factsheet on the section 1251, the report, explains that the U.S. nuclear force structure under the treaty could comprise up to 420 ICBMs, 240 SLBMs, and 60 bombers. Since deployment at the maximum level of all 3 legs of the triad under that explanation add up to about 720 delivery vehicles, it is, of course, mathematically impossible for the United States to make such a deployment and to be in compliance with the treaty's limit of 700 deployed strategic nuclear delivery vehicles.

Clearly, significant additional decisions are going to have to be made with respect to U.S. force structure under the treaty. I would be reluctant to cast a vote in favor of the treaty without being fully briefed in more precise detail about the plans for our nuclear delivery force structure.

My question is, when can this committee expect to receive a more precise outline of how the U.S. nuclear force posture will be made to comply with this treaty's limits of 700 deployed nuclear delivery vehicles, and will the administration provide a classified briefing to those of us who are concerned on the specific planned force structure for these deployed nuclear delivery vehicles?

Secretary GATES. Certainly we would be happy to provide a classified briefing in terms of the options that we have under consideration. Let me say just from the outset that we do not anticipate any changes in the force structure under this treaty that would affect current basing either of aircraft or our missiles here in the United States.

The reductions in the treaty do not need to be made until the 7th year, and I'm going to ask Admiral Mullen to chime in here, but I think our interests are best served as we watch the developments of the next decade. My opening statement, as the factsheet did, said here are the categories and the numbers that we are working with, and frankly I see no reason for us to make final decisions within those narrow frameworks until we have a better sense of strategic developments with Russia and with other countries as well, especially since we have all this time under the treaty.

I think that one key point of reassurance again is, of all of the options that we're looking at, the ones that we think we're likely to implement, that it would not involve closing any of our missile bases or changing our basing of our bombers at this point.

Admiral?

Admiral MULLEN. Sir, I would just add that the uniformed leadership feels very strongly about not making those decisions before they are due. That's really 7 years out. The strength of the treaty, as represented in the 1251 report and the numbers that you described, gives us some flexibility. Clearly, as we evolve, we're at the beginning of looking at what the next submarine looks like in that part of the triad. What we wanted was as much flexibility for as long as we could have to make that decision, and we saw no need to do that now.

I understand the math. I understand exactly where you are. But it just was not needed. We felt very strongly we wanted to wait as

long as we could to continue to assure the certainty of each leg of the triad as it's laid out in this treaty.

Senator THUNE. The press has reported that the administration is going to spend about $100 billion over the next 10 years in nuclear delivery systems. About $30 billion of that would go toward development and acquisition of a new strategic submarine and, according to estimates by U.S. Strategic Command, the cost of maintaining our current dedicated nuclear force is approximately $5.6 billion per year or about $56 billion over the decade.

That leaves roundly $14 billion of the $100 billion the administration intends to invest, even less if you factor in inflation. That $14 billion is not nearly sufficient to develop and acquire a next generation bomber, a follow-on ICBM, a follow-on air-launched cruise missile, and develop a conventional prompt global strike capability. So the question is, in light of those figures I just mentioned and the fact that you've yet to make additional modernization decisions, why do you believe that $100 billion is sufficient investment in our delivery systems over the next decade?

Admiral MULLEN. From my perspective, Senator, the current investment is a projection of what we understand right now. We are undertaking in DOD a very thorough look of what the future with respect to the long range of the next generation bomber is, recognizing that all the systems are going to go through some modernization over the next couple of decades.

From what I've seen inside DOD over time is, obviously, when those decisions get made resources get made available to support them. One of the big challenges and concerns right now is the next generation missile submarine and, quite frankly, replacing it, containing it, containing its costs, and making sure that we can, in the long run, sustain that part of the leg as we look at how we're going to move ahead in the next generation bomber, as well as the next generation ICBM.

I'm comfortable right now that the investment there certainly supports us moving ahead, and we'll have to make adjustments over time based on where the triad goes specifically.

Secretary GATES. Senator, I would just say that with that figure that you mentioned, there are placeholders for each of the modernization programs because no decisions have been made. They're basically to be decided, and along the lines that Admiral Mullen is just describing, those are decisions we're going to have to make over the next few years, in terms of we're going to have to modernize these systems, and we're going to have to figure out what we can afford.

Senator THUNE. At this point, we don't know whether or not the administration is going to pursue some of these programs? Is that what you're saying?

Secretary GATES. I am saying that we have not yet made decisions on how we are going to modernize long-range strike, how we are going to modernize the ICBM force. We are in the process. We have money in the budget for a new nuclear reactor for the Navy for the next generation nuclear submarine, so we are on track in that particular area of modernization.

Senator THUNE. I see my time has expired, Mr. Chairman. There may be some questions I'd like to submit for the record.

Senator UDALL [presiding]. So ordered. Thank you, Senator Thune, for your thoughtful comments.

Chairman Levin has taken a much more dangerous step than his support for ratifying this treaty. He's deputized me to serve as the chairman of the committee until he can return. I will recognize myself for 5 minutes.

I noted that Dr. Kissinger testified in front of the Foreign Relations Committee last month about this treaty, and he said that it's an evolution of treaties that have been negotiated in previous administrations of both parties, and its principal provisions are an elaboration or a continuation of existing agreements. Therefore, a rejection of them would indicate that a new period of American policy had started that might rely largely on the unilateral reliance on its nuclear weapons and would therefore create an element of uncertainty in the calculations of both adversaries and allies.

Would any of you like to comment on his statement? Maybe I'll start with the Secretary of State.

Secretary CLINTON. Well, Senator, we very much agree with that assessment. Our Department has been briefing along with our colleagues from DOD, from the Joint Chiefs, and from DOE, a series of former diplomats and DOD officials and DOE officials, including Dr. Kissinger.

I think the overwhelming sentiment is that this treaty is in our national security interests and that a failure to ratify this treaty would have both foreseen and unforeseen consequences. One of the foreseen consequences is a return to a period of instability and unpredictability between the United States and Russia, which would not be in our security interests because, given what we view as the major threats we face today, nuclear war with Russia is not one of them, thank goodness. That is an evolution, as Dr. Kissinger has said, of political, strategic, and economic changes over the last years since the Cold War.

Human nature being what it is, as Senator Lieberman said, if you introduce instability and unpredictability, there is no way that we wouldn't have to be responsive. I think you'll hear from all of us that we think this treaty continues the tradition that other treaties have exemplified of making it possible for us to have an understanding with, and legally binding agreements with, the Russians that are very much to our interest as well as to theirs.

We are working with the Russians on a range of matters. I think it would have been very unlikely a year ago that we would have seen Russia supporting our sanctions in the United Nations against Iran. We have been building confidence with Russia around a range of important issues, and this negotiation over the New START, especially as Admiral Mullen said, bringing in both of our Presidents at a very high level probably a dozen times to hammer out some of the particulars in the treaty, has really been to our national security interest.

So that is, I think, very much in support of what Dr. Kissinger testified to.

Secretary GATES. I would just add one point. Secretary Clinton in her opening statement talked about the contribution the treaty provides in terms of transparency, predictability, and stability. One of the strategic developments that we see going on that hasn't been

mentioned in this hearing is that the Russians are, over a period of time, reducing their reliance on and reducing the size of their conventional forces, for a variety of economic, demographic, and other reasons.

As they reduce their size of their conventional forces, they are particularly focused on the modernization of their strategic forces, and particularly their nuclear capabilities. I think that, from our national security standpoint, having this treaty that provides the transparency, predictability, and stability in that kind of an evolving environment is very much in the interests of the United States.

Senator UDALL. Admiral Mullen, would you care to comment if there's any ramifications here for military-to-military relationships?

Admiral MULLEN. Actually, I've worked this multiple times with my counterpart and our staffs. I guess I'd characterize it the same way as I did between the two countries' leaders: very difficult, very challenging, strong positions. Many of the issues that have been raised here, the one of tactical nuclear weapons, the issues of missile defense, the issues of telemetry.

But, I was actually in the end very encouraged, though the negotiations were difficult, with the willingness to move to a position to get to this treaty from the Russian military perspective, obviously the two countries, but in particular the Russian military perspective. I am encouraged by that.

Part of that, I think, is also represented in the increased military-to-military relationships across the board, this being a big piece of it. For myself and my counterpart to say when we get through with this, which we have, that this is indicative of the kinds of things we can do in many other areas. Counterterrorism is something that immediately comes to mind, counter-piracy. From where we were to where we are over even the last couple of years, it's improved dramatically. This is a big piece of it.

Senator UDALL. My time has expired, and I'm going to recognize Senator Brown next. Let me make two short final comments. It's a very powerful picture to have the four of you sitting here representing a broad set of viewpoints supporting the treaty. Thank you for taking your time to be here.

Second, I read with great interest and Secretary Clinton, Secretary Gates, Admiral Mullen, and I think Secretary Chu as well, you are aware of the Hagel-Hart commission work on our policy towards Russia. They talk about a realpolitik that Dr. Kissinger, in effect, is the leading practitioner of, and there are ways in which they point out we can work with Russia, there are ways in which we can't, there are cultural and historical differences.

The points you make about expanding our relationship through the approval of this treaty are really powerful ones. Thank you again for being here.

Senator Brown, you're recognized.

Senator BROWN. Thank you, Mr. Chairman.

Thank you to our panel. Secretary Clinton, thank you for your leadership on this treaty and everything you've been doing, keeping us informed, which is very helpful to me as the kind of new kid on the block.

I have a great concern about Iran, and I find that their nuclear ambitions are more destabilizing than actually us getting a handle on the U.S.-Russian relationship. I'm wondering, in your negotiations with Russia, have you been able to broach that subject with Russia? I can't imagine that they would like a nuclear Iran to help destabilize that region and potentially export their brand of terrorism in many instances around the world and the region.

Any comment on that?

Secretary CLINTON. Thank you very much, Senator, and welcome to this committee.

Senator BROWN. Thank you.

Secretary CLINTON. I think your concerns are very well placed. Obviously, the four of us and many, many others in the government spend a great deal of our time thinking about Iran and how to prevent it from obtaining nuclear weapons. I believe that our close cooperation with Russia on negotiating this New START added significantly to our ability to work with them regarding Iran.

Three quick examples. Because we developed very good working relationships, despite our disagreements on the New START, between our militaries and our civilian leadership, I think it gave us just a better base on which to raise the concerns about Iran. It took a while to make the case to the Russians that Iran indeed was pursuing not just a peaceful civil nuclear capacity, but, in our view, poised to pursue nuclear weapons.

Once they became convinced that there was some concern there, they began working with us. In the fall, we reached an agreement with Russia and France to try to get Iran to demonstrate some good faith by shipping out its low enriched uranium to outside of Iran to be enriched and then returned, and the Russians stood with us. They stood with us through all the ups and downs of that negotiation.

Finally, the Russians have consistently made it clear that they share our concerns now about a nuclear-armed Iran. It's hard to draw a straight line from the many ways we've been cooperating with them, but I think in human relations, Senator, you do have to build the relationship, and we've been doing that at the highest levels between our presidents and then between our counterparts. You saw the results with the United Nations Security Council vote.

You'll see President Medvedev coming here next week for a summit with President Obama, where we now have a very comprehensive set of issues that we engage on very openly, candidly, not always in agreement, but nevertheless we feel like we've made a very strong basis for further work on what we see as some of our major threats, namely a country like Iran getting nuclear weapons, terrorists getting access to nuclear materials, and Russia is now very much working with us.

Senator BROWN. Well, thank you. I would encourage you to continue that relationship because I find it disturbing that, with all the efforts we're trying to do, Russia and France are still contributing greatly financially to the regime and allowing them to circumvent some of those sanctions. I would appreciate your continued leadership on that.

Secretary GATES. Senator, I might just point out, because you've just put your finger on a kind of schizophrenic Russian approach to this.

Senator BROWN. I'm glad you said that. Thank you.

Secretary GATES. When I was in Moscow 3 years ago, then-President Putin told me that he considered Iran Russia's greatest national security threat. Within the same timeframe, one of their deputy prime ministers told me, he said, "You know, they don't need a missile to deliver a nuclear weapon to Russia."

At the same time, the Russians are seeing this growth of terrorism in the Caucasus that is a deep concern to them. Yet, they have these commercial interests in Iran that go back more than 20 years. In 1992, I raised, when I visited Moscow as the first head of CIA, this with my counterpart about their support for the nuclear reactor in Iran. We went back and forth, and finally he said, "It's all about the money."

I think that it is this balancing act in Russia. They recognize the security threat that Iran presents, but then there are these commercial opportunities which, frankly, are not unique to them in Europe.

Senator BROWN. Thank you for that add-on, Mr. Secretary.

I have one final question, and that is, I'm always wrestling with our reduction in the strategic nuclear warheads to 1,550 while the Russians will continue to deploy at least 3,800 tactical nuclear warheads in addition to their strategic nuclear warheads. As a result, the Russians maintain a 10 to 1 superiority in tactical nuclear weapons and their tactical nuclear weapons will outnumber our strategic nuclear weapons by 2 to 1.

I'm just trying to wrestle with that. How does that work in terms of the numbers? Because you can deploy some of these weapons on submarines, move close to our coast. I'm trying to get a handle on how that's creating nuclear stability—and I direct this to the Secretary—and a favorable manner for us and our allies.

Secretary GATES. Well, it is a concern, obviously. The strategic arms talks have always focused strictly on the strategic weapons, ICBMs, SLBMs, and long-range heavy bombers. I would just say the Europeans are clearly concerned about this. There is a huge disparity in the number of those deployed weapons in Europe, as you suggest.

I think that there is a general feeling on our part, and certainly on the part of our European allies, that the next step needs to involve—in our discussions on arms control with the Russians—and needs to address this issue. I would just echo something Secretary Clinton said earlier in the hearing. We will never get to that step with the Russians on tactical nukes if this treaty on strategic nuclear weapons is not ratified.

Senator BROWN. Thank you, Mr. Chairman. My time has expired.

Chairman LEVIN [presiding]. Thank you, Senator Brown.

Just a quick comment if I can on something which was raised, I think, and I came back in the middle of the answer, on the commercial relationship between Russia and Iran. I understand—and, Secretary Clinton, perhaps you can confirm this—that following the U.N. resolution adoption of sanctions that Russia finally has actually cancelled the sale of the S–300 to Iran. Now, there are dif-

ferent reports we get on that, the Russian sale to Iran of those anti-air systems.

Do you know if that's accurate?

Secretary CLINTON. I will check on this, Mr. Chairman. My recollection is that they announced once again a postponement, an indefinite suspension. I think we have to sort of separate it out. We can get more information for both Senator Brown and the committee. Iran is entitled to civil peaceful nuclear energy.

Chairman LEVIN. We understand that.

Secretary CLINTON. The Russians have consistently been working on the reactor at Bushehr, Iran, and providing such support. Until the recent U.N. Security Council resolution, you could make an argument that Iran was also entitled to defensive weapons, which the S–300 are claimed to be. The Russians over the past 15 months, in part I would argue because of our relationship-building, have never delivered those and have consistently postponed it.

I will doublecheck. If they've cancelled the sale, I'm not aware of it. But I am very much aware and supportive of their continuing suspension.

Chairman LEVIN. It's a very significant development if they not only have postponed it, which they have regularly, and we're very happy they've done so because of the statement that that makes to Iran. I think there was a report that they actually went beyond that following the U.N. resolution.

Secretary CLINTON. Well, I think that what they said is they would not deliver the system. So is that a cancellation or is that an indefinite suspension? Either way it's good news because they will not deliver the security.

Chairman LEVIN. Thank you.

Senator Hagan.

Senator HAGAN. Thank you, Mr. Chairman.

Once again, thank you to all of you testifying today and certainly for the work that you're doing for our country. I think we all appreciate that very, very much.

I wanted to talk just a minute about the recruitment and retention of nuclear scientists and engineers. Responsible stockpile stewardship management requires modernized infrastructure and a highly capable workforce to sustain the nuclear deterrent. Our labs cannot anticipate potential problems and reduce their impact on our nuclear arsenal without being appropriately resourced.

I'm concerned that our ability to recruit and retain nuclear scientists and engineers is threatened by a lack of financial stability in the stockpile stewardship and LEP, as well as the perceived lack of importance. This has affected NNSA's ability to recruit and retain the best and the brightest.

Secretary Chu, could you describe, please, what the heads of Los Alamos, Lawrence Livermore, and Sandia have said regarding the negative impact budgetary pressures are having on their ability to manage our nuclear arsenal without testing?

Secretary CHU. Certainly. Well, Senator, this is a very big concern. When I became Secretary of Energy and looked at the fraction of the NNSA budget that was devoted to the scientific and technology programs that goes directly to what you speak of, the

intellectual capabilities, that fraction of budget was declining and was on a 10-year path to going in half.

I said we have to stop this, we have to reverse this. In the last year, and in this budget for 2011, we're on a path to rebuild that. It's vital because there is a population bulge that is nearing retirement and we need the very best people in order to carry this stockpile stewardship program, the nonproliferation program, our obligations to provide safe, secure, and reliable weapons going forward.

We believe we can do this in the proposed budget of 2011 and in the out years. That's the path we're taking. There is also an issue of the fact that, in order to recruit the best and brightest, they have to be convinced that the Country cares about this. They have to be convinced because essentially these people go black in a certain sense. They disappear, and they can't publish; a lot of their best work cannot be published in the open literature.

If they are convinced that the United States does deeply care about this, and it is such a vital part of our national security, we can get those people. It also depends on the facilities. You have to continue to maintain and modernize those facilities.

The plans in this budget go to all and speak to all those things.

Senator HAGAN. It's also interesting, I was talking to some individuals with an energy company just recently and, due to the fact that we haven't been building nuclear power plants, there has been a vacuum of nuclear engineers. This company is actually helping to fund nuclear engineering programs at several universities because of the need for nuclear engineers and scientists.

Secretary CHU. That doesn't directly impact the NNSA mission, but certainly within the nuclear engineering side in another part of DOE, the nuclear energy side, we have been consistently giving out on the scale of $5 million to students for advanced degrees—this is master's and Ph.Ds mostly—and we're looking to improve that.

There's certainly been—we anticipate there is now—a shortage, and there will be an increasing shortage, as the world looks to nuclear energy as part of the solution to decreasing carbon emissions.

Senator HAGAN. Some experts indicate that if the Senate does not ratify the New START it can potentially send conflicting messages about the administration's emphasis and commitment to nonproliferation and the NPT. Some experts add that ratifying the New START will send a positive message in achieving consensus with other countries on nuclear issues. In other words, if the two nations that possess the most nuclear weapons, us and Russia, agree on verification and compliance with nuclear weapons and are committed to nonproliferation, it is possible to achieve consensus with other countries.

It is important to encourage non-nuclear states to sign and abide by the NPT. Ratifying this treaty will demonstrate our commitment to nonproliferation, sending a message and isolating Iran. In April 2009 during a Senate Foreign Relations Committee hearing on the New START, Dr. James Schlesinger indicated that at this juncture for the United States to not ratify the treaty it would have a detrimental effect on our ability to influence other nations with regard to nonproliferation.

Secretary Clinton and Secretary Gates, if the Senate does not ratify the New START, what implications will that have on gaining international consensus on the NPT?

Secretary CLINTON. Well, Senator, I think your question really summarized our concerns. We have seen positive response because of our commitment to this treaty, because of President Obama's speech in Prague, because of our active involvement in the NPT review conference, because we have been willing to work toward further disarmament goals with Russia, that all has given a boost to nonproliferation efforts globally.

Just speaking personally from my exchanges with my counterparts in NATO and elsewhere, it was a great boost to our leadership in moving the nonproliferation agenda. I think we saw that in getting an agreement out of the NPT Review Conference, which the United States was not able to do in 2005, in the very positive response from our NATO allies, many of whom still very clearly have doubts about Russia, those in Eastern and Central Europe, and in our conversations coming out of our NPR and the national security statement that has recently been put out.

I think the premise of your question is absolutely the case, that we have been able to obtain concessions and move this greater agenda forward because of our work with Russia on this treaty.

Secretary GATES. I have nothing to add to that.

Senator HAGAN. Thank you.

My time is up. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Hagan.

Senator Chambliss.

Senator CHAMBLISS. Thank you, Mr. Chairman.

To the panel, thanks for what you do, not only on this particular issue, but your service to our country. We appreciate you very much.

It's pretty obvious that, based on the questions that have been asked, there's a real issue regarding not just missile defense, but the comments that have been made by the Russians and, as Senator McCain said, that they've been so strong and so direct. I don't know whether there's been any challenge to that on the part of the administration to President Medvedev, but certainly he's going to be here, as you say, next week. He's going to be meeting with the President. He'll also be meeting with some members on the Hill. There will be an opportunity to clarify this. I hope the President challenges him on it, because it is a key issue with respect to where we go.

With that in mind, to Secretary Clinton and Secretary Gates, I want to focus on what I see as relevant decision points with respect to missile defense and what factors the United States will consider when making these decisions. First of all, some of my colleagues have stated that in the overall context of U.S. national security, the issue of missile defense may be more important than any agreement that the United States and Russia enter into regarding nuclear weapons. That's because we're much less likely, as both Secretary Clinton and Secretary Gates have alluded to today, to face a nuclear conflict with the Russians than we are to be attacked or threatened by a rogue nation or a terrorist group that possesses nuclear weapons.

I agree with that perspective, and that's why we need a robust missile defense system, not to protect us from the Russians, but to protect us from primarily rogue nations. Secretary Gates, I think you even spoke to this issue directly in previous testimony.

Now to my question. In the 2020 timeframe, the United States is currently planning to deploy the SM–3 Block 2B missile in Europe and, although it is intended to defend against launches from the Middle East, the missile will have an ICBM intercept capability and could represent under this treaty from the Russian perspective a qualitative or quantitative improvement in U.S. missile defenses that could provoke a Russian withdrawal from the treaty.

Assuming the threat to the United States and our European allies still warrants deploying the SM–3 Block 2B missile around the 2020 timeframe, and assuming that you were in your current position when that decision needed to be made, would you recommend the United States deploy this system regardless of the Russian response?

Secretary GATES. Yes, sir, I would. I think that the kind of missile threat that we face from rogue states such as Iran and North Korea is such a problem, and I think by 2020 we may well see it from other states, especially if we're unsuccessful in stopping Iran from building nuclear weapons. I think you'll see proliferation in the Middle East of nuclear weapons and probably missiles. I think that the need will be even greater perhaps by that time.

Fast forwarding 10 years, it seems to me that the plan that we have laid out and the developments that we've laid out as part of the Phased Adaptive Approach, plus keeping the ground-based interceptors in Alaska and Vandenberg, and continuing to upgrade those for the longer range missiles, would be absolutely essential.

I would say, there's one other reason why I think we would need to do this, and that is because one of the elements of the intelligence that contributed to the decision on the Phased Adaptive Approach was the realization that if Iran were actually to launch a missile attack on Europe it wouldn't be just one or two missiles or a handful; it would more likely be a salvo kind of attack, where you would be dealing potentially with scores or even hundreds of missiles. The kind of capability that we're talking about with the SM–3 Block 2B would give us the ability to protect our troops, our bases, our facilities, and our allies in Europe.

For all those reasons, that would be my recommendation if, God forbid, I were still in this job 10 years from now.

Senator CHAMBLISS. Mr. Secretary, you didn't think you would be there now, so who knows.

Secretary Clinton, I assume you concur with that?

Secretary CLINTON. Yes, I do, Senator, completely.

Senator CHAMBLISS. Thank you.

Chairman LEVIN. What, with the "God forbid" part?

Secretary CLINTON. The whole thing, Mr. Chairman. [Laughter.]

Senator CHAMBLISS. Well, frankly, that makes it much more comforting. I assumed that that was the case, Mr. Secretary, but it is much more comforting to us.

My time is up, so I don't have time to get into the issue of rail mobile launched weapons, which this treaty is silent on. We know the Russians have a history of that. As I read the treaty, those

would be exempt, would not be counted, and that could be a serious issue for a number of us. I will submit a question for the record to you relative to rail as well as sea- and air-launched ICBMs.

Lastly, just to comment, with the complexity of this issue and the obvious determination on the part of the administration, as has been expressed by each of you today, I don't know whether you've given any thought to doing a red team on this. With all the complexities and the difficulties on this side, I would hope maybe you'd give some thought to having a red team look at this, so that we can be better prepared to move as quickly as what you folks obviously want us to move.

Thanks, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Chambliss.

Senator Burris.

Senator BURRIS. Thank you, Mr. Chairman.

I would like to add my thanks to these four distinguished Americans for your service to the country. Admiral Mullen, I would just like to ask you, was any of the wargaming done to determine whether we still will be able to respond effectively to a provocation if our nuclear arsenal is reduced to the level that's indicated in the treaty?

Admiral MULLEN. Actually, the analysis that was done prior to and in support of the negotiations with respect to that from a military capabilities standpoint was extensive. The uniformed leadership, one, is aware of that; and two, certainly took that into consideration as we arrived at our positions and comfort level with the provisions that are in the treaty.

Senator BURRIS. Senator Chu, you just heard Senator Hagan raise a question about the training and the talent pool of our scientists and engineers. Are we really training enough at our universities, and do we have a role in—that is, DOE—in assisting in their training process so that we can have the brain power to deal with this new technology?

Secretary CHU. Well, I think the American research universities that train the type of people that we seek in the NNSA and the national labs are doing an excellent job. It's really a matter of recruiting the best of those, or some of the best of those people, into service.

Senator BURRIS. Is money a problem, salaries?

Secretary CHU. No. I think the intellectual challenge, the importance of the work, the facilities you will have access to are the real issues. If you were in it to look for money, you would not go into science.

Senator BURRIS. Secretary Clinton, you said that the treaty will reduce the number of nuclear weapons. I'm not one to really depend on newspaper articles, but let me just see what your and Secretary Gates' thoughts are on this article that just came out yesterday. It was an op-ed piece published in the Washington Times on June 16, and Keith Payne comments that Russian strategic analysts have noted that the New START does not require any real reduction in the Russian nuclear arsenal. To quote him, he says: "The new treaty is an agreement to reducing the American and not the Russian strategic nuclear force. In fact, the latter will be reduced in any case because of the massive removal from the order

of battle of obsolete arms and a one-at-a-time introduction of a new system."

Russian defense journalist Alexander Gaut also noted in the Washington Times that Russia will "fulfill its pledge without eliminating a single actual weapon." The same is true regarding warheads.

Is there any truth to this article?

Secretary GATES. Well, let me start. It looks like three of us are ready. I would just comment in very simplistic terms: The Russians, the number of their strategic nuclear delivery vehicles is in fact below the treaty limits, but the number of warheads is above the treaty limits. They will have to take down warheads.

Secretary CLINTON. That's correct, Senator. We can give you additional material to respond. You will find there are, unfortunately, a number of commentators or analysts who just don't believe in arms control treaties at all and, from my perspective, are very unfortunately slanting a lot of what they say. This is a perfect example of that, because, as Secretary Gates just pointed out, there would be reductions on the Russian side.

Senator BURRIS. That's very interesting, how they can have these conflicting analyses of what really is there.

Secretary Gates, Secretary Clinton, you answered the question on Iran. I'd like to raise one here. Iran and North Korea have been pursuing the technology for nuclear weapons. Will the treaty change if they manage to develop these nuclear weapons? Will there be any changes in our treaty, New START, with Russia if these two countries come up with nuclear weapons?

Secretary GATES. No. We think that the North Koreans already have them. As we've talked earlier in the hearing, we clearly are committed to preventing Iran from getting them, but it would have no impact on this treaty.

Senator BURRIS. Thank you very much.

Thank you, Mr. Chairman. My time has expired.

Chairman LEVIN. Thank you very much, Senator Burris.

It's now 11:30 a.m., and we're going to have just maybe a couple minutes each during a second round, Mr. Secretary, if you're able to stay. If not, we understand that. Do you want to stay on for a few more minutes?

Secretary Gates, is there any military need for a new nuclear weapon at this time?

Secretary GATES. To the best of my knowledge, no.

Chairman LEVIN. Admiral?

Admiral MULLEN. Same answer.

Chairman LEVIN. I want to go back to this language in these unilateral statements, because I went back and looked at the statements in START I and they are incredibly similar, so much that the opening words to the statement are exactly the same. On the U.S.-Soviet negotiations, they said that "This treaty"—the Soviets—"may be effective and viable only under the conditions of compliance with the ABM Treaty."

They said: "The extraordinary events referred to in" such and such an article, which is the supreme national interests allowing withdrawal—"include events relating to withdrawal by one of the parties."

We then issued our statement saying no, it doesn't, basically. But their statement has the same format, with the same opening words, as a matter of fact, for each.

START I was negotiated by the first President Bush, is that correct, with the same kind of statements, unilateral statements, that were made after the treaty was agreed to? I think you've all indicated that either side has a right under that treaty to withdraw if its supreme national interests indicate it, and under this pending treaty; is that correct?

If the Russians, for whatever reason, decided their supreme national interest required them to withdraw, they can withdraw. If they withdraw—and even if they don't withdraw—we could withdraw if our supreme national interests so indicated to us. Is that correct, Secretary Clinton, Secretary Gates?

Secretary CLINTON. Yes.

Chairman LEVIN. Can we take your nodding of the head?

Secretary GATES. Yes.

Chairman LEVIN. I would hope that we would treat these kind of unilateral declarations the same with the current administration, as was the case with the first President Bush. The analogies are so close, they're almost perfect. Nothing is quite perfect in this life, but that's about as close as you can come.

Finally, on the statement of Russia, cooperating with Russia in terms of missile defense. The cooperation which you're talking about to the Russians is the possible addition of information from their radar to a missile defense system. They're essentially joining up to make more capable what we are going to proceed with in the area of missile defense; is that correct?

Secretary GATES. Yes.

Chairman LEVIN. It's not a limitation on us; it's a possible addition to the capability of our anti-ballistic missile system.

Secretary GATES. It would be an expansion.

Chairman LEVIN. An expansion or additional capability, which would be a very powerful statement to Iran, just like the recent sanction vote in the U.N. was a powerful statement to Iran. They are more and more isolated, not just from people who have traditionally been very outspoken about the threat, but now even from the Russians and the Chinese.

If we could negotiate something with the Russians for them to expand and add capability to a missile defense system that was essentially a defense against an Iranian threat, would you agree, Secretary Gates, that collaboration would be an extraordinarily powerful statement to Iran about their tightening and tightening isolation?

Secretary GATES. Yes, I do.

Chairman LEVIN. Do you agree with that, Secretary Clinton?

Secretary CLINTON. Yes, I do, Mr. Chairman.

Mr. Chairman, if I could, just on a follow-up to your last questions, which I very much appreciate. I want to ensure that the record is clear on one additional point. Senator Collins raised a certain press report about a U.S.-Russia deal to limit U.S. missile defenses, and I want to be as clear as I possibly can. Number one, there is no secret deal.

Number two, there is no plan to limit U.S. missile defenses, either in this treaty or in any other way.

Number three, on that score, the story is dead wrong. I want to be very clear about that because I don't want anyone using what is yet again another inaccurate story to argue against this treaty. As Secretary Gates and I have both said, we will continue to explore missile defense cooperation with Russia, but the talks are not secret and there is nothing on the table or even in the wildest contemplation that would involve any limits on our missile defense. Instead, we're trying to see whether they can be expanded with additional capabilities for our security.

Chairman LEVIN. Which would then be an additional powerful weapon against the great threat that is out there, which is Iran.

Secretary CLINTON. That's correct.

Chairman LEVIN. Thank you.

Senator Brown.

Senator BROWN. Thank you, Mr. Chairman.

I merely wanted to continue listening and learning. First of all, I know the Secretary is under time restraints, and I know we're going to have additional hearings. But I do want to just throw this out there. For me, it's also a trust and verification issue. In the back of my mind I'm saying, yes, we're going to do all these wonderful things, but how can we actually verify and ensure that we're not being misled.

I don't have a question. I just want you to know that's where my head's at. If you can reach out off line to let me know, that would be wonderful.

Mr. Chairman, thank you for your leadership in holding these hearings.

Chairman LEVIN. Thank you very much, Senator Brown.

Now, Senator McCaskill has questions, but not of you, apparently, Secretary Gates.

Senator MCCASKILL. Well, I do.

Chairman LEVIN. Oh, you have to go, too, yes. I wasn't going to say it, but they are for you, Admiral.

So again, Secretary Gates, thank you so much. I know you stayed beyond what you thought you would be able to.

Senator McCaskill, your timing, as always, is perfect.

Senator MCCASKILL. Thank you.

Thank you all for being here. I appreciate it. I have been following most of the hearing, even though I have not been here physically.

I know Secretary Gates said earlier that all 18 B–2s will be retained, Admiral Mullen. Obviously this is of great concern because we are proud to house all of the B–2 fleet in the 509th Bomb Wing at Whiteman Air Force Base in Missouri. Talk a little bit about a practical perspective. What should Whiteman expect in terms of inspections and verification visits from Russia, and how can I reassure all the great folks at Whiteman that the technology and the secrets that we have with the B–2 fleet will not be in any way compromised?

Admiral MULLEN. With respect to the future capability, the capability which you describe, is absolutely critical. One of the areas that we looked very carefully at throughout the analysis and nego-

tiation was the preservation of the three legs, and then in the future what does that mean for the future force structure.

We don't have to make any significant decisions with respect to that until 7 years into the treaty. In terms of preserving the capability that we have, the technical capability that we have, there is nothing, from my perspective, in this treaty in terms of verification which would threaten that understanding. The treaty has a provision for 18 inspections a year, 10 of which are what I would call operational kinds of inspections and 8 of which are administrative kinds of inspections in support of the verification regime.

There are more in terms of verifying the number of warheads, if you will. That's a provision literally for each system. That's, I think, an important strength of this verification treaty on both sides.

In terms of protecting our capability and the investment that we've made in technology, systems, and people, this treaty will more than do that. We do have a great, great group of people at Whiteman, as we do in this enterprise, the nuclear enterprise, throughout the military, and I don't think they need to worry about that at all.

Senator MCCASKILL. First, Secretary Clinton, let me reiterate again for the record how proud you make our Country, the job you do around the world. I think you reflect so well on our Nation, and I think you're doing masterful work under very difficult circumstances. We have so many places to worry about right now.

I would be curious to hear from you what you see as the consequences of not ratifying the treaty, particularly as it relates to the deterrence of the rogue extremists that we are dealing with around the world. If you would speak to what happens if we can't get this done?

Secretary CLINTON. Well, Senator, I think you've really put into words what our greatest fear is, because we believe that the consequences of not ratifying this treaty would have very serious impacts on our relationship with Russia and would frankly give aid and comfort to a lot of the adversaries we face around the world.

With respect to the first, it would not only disadvantage us because we wouldn't have the transparency, the verification regime, to know what is going on inside Russia, but it would very much undermine the relationship that President Obama has been leading us to establish to provide more confidence between the United States and Russia so that together we can tackle the threats posed by Iran, North Korea, and networks of terrorists.

Second, it would, unfortunately, turn back our efforts to try to unify the international community against those threats. We've made progress with Russia, and Russia has influence with a number of other countries, to begin to recognize that the Cold War is over, the standoff between the United States and the former Soviet Union is a thing of the past. Thankfully, we can look for other ways to build confidence and trust between us, which is imperative given the very real threats of nuclear-armed rogue states and networks of terrorists.

At the nuclear security summit, which the President called and led, for the first time we got more than 45 nations to come together to acknowledge the obvious, that we all face the threat of these nu-

clear materials falling into the wrong hands, and therefore we have to come to some new understandings, work more closely together. I think Russia is an absolutely critical partner in our efforts to do that.

Senator MCCASKILL. What is the confidence level that we have in terms of the Russian military, their ability to implement, especially if you look at the current economic state of Russia? Do we have the kind of confidence we need to have in their ability to implement within the Russian military?

Admiral MULLEN. Overall, yes, ma'am. I have watched from my perspective since 2004, the evolution of the Russian military, both when I was stationed in Europe and dealing with them more directly, literally from an operational force perspective, up to now. They have, from my perspective, made a significant decision and a shift to invest in their strategic forces. I've watched them modernize them, put the money in, conduct the training, where they have certainly been challenged economically and fiscally in their own defense budget.

This is an area that they continue to focus on and invest in. I've seen it, and I've also had that reaffirmed by the head of their navy when I was the head of our Navy, as well as when I was in Europe in my Navy job and, certainly from the current and the last two heads of the Russian general staff, in my current job.

They're very committed to getting this done.

Secretary CLINTON. Senator, if I could just add something to what Admiral Mullen said, because I think this is another very key point. Secretary Gates referred to it. This treaty may seem modest in scope, but given the changes in Russian military posture where they are moving away from reliance on a large land-based army and conventional weapons to focus what may be scarcer resources on their strategic capacity, I think this treaty actually is more significant, because as the Russian military makes these changes, our relationship with them in this going on strategic nuclear offensive weapons gives us actually more insight into what their future plans are. It's a look forward as opposed to a static look or a look backwards.

Senator MCCASKILL. Well, I think this treaty represents yet another opportunity where we have to talk about proving a negative. That is, what happens if we don't? What are we preventing by doing it? That's always tough, but I'm firmly convinced that this treaty is so much preferable to the alternative, and I appreciate all of you being here today and enduring. Secretary Chu, thank you for all your good work. Maybe more so than the others on the panel, you are wearing lots of different hats right now. So maybe it's a relief to not spend all morning talking about oil. We welcome you, Hillary, and thank you all for your service to our country.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator McCaskill.

Senator Brown had a question or a request.

Senator BROWN. Thank you, Mr. Chairman. I'm hopeful I could submit some questions for the record a little later.

Chairman LEVIN. Absolutely. Those questions will be welcome, and the witnesses are alerted that we would hope for prompt answers.

We're very grateful to all of you for again your service. We do want to mention that, not just for being here today, but really for your extraordinary service. I'm not going to go through that service because we all want to probably get to lunch. But if you can delay for a couple moments before you leave, Secretary Clinton, I have something that I would like to talk to you about if we could.

Our hearing is adjourned. It was a very, very useful hearing. We thank all our witnesses.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR CARL LEVIN

NO CONSTRAINTS ON MISSILE DEFENSE

1. Senator LEVIN. Secretary Gates and Admiral Mullen, will the New Strategic Arms Reduction Treaty (START) constrain the development or deployment of any planned or programmed U.S. missile defense capabilities, including the phased adaptive approach to missile defense in Europe, the Ground-based Midcourse Defense (GMD) system, or future missile defenses, or would the treaty allow the United States to develop and deploy the most effective missile defenses to implement our missile defense policies and objectives without constraint?

Secretary GATES and Admiral MULLEN. The New START treaty (NST) will not constrain the United States from developing and deploying the most effective missile defenses possible, nor does the NST add any additional cost or obstacles to our missile defense plans. This includes the Phased Adaptive Approach in Europe, the GMD system, and any future missile defenses.

PREAMBLE STATEMENT ON RELATIONSHIP BETWEEN OFFENSIVE AND DEFENSIVE FORCES

2. Senator LEVIN. Secretary Clinton, the New START contains a preamble that, among other things, recognizes the interrelationship between strategic offensive forces and strategic defensive forces. This is consistent with the July 2009 agreement between President Obama and President Medvedev to include such an acknowledgment of this factual relationship. Is this preambular statement in the treaty a binding provision, or does it contain any binding obligations, relative to our missile defenses?

Secretary CLINTON. The Preamble of the treaty contains a statement acknowledging the interrelationship of strategic offensive and strategic defensive arms. This statement does not establish any legally binding obligations.

3. Senator LEVIN. Secretary Clinton, did the START include a similar statement in its preamble recognizing the relationship between strategic offensive and strategic defensive forces?

Secretary CLINTON. No. The Preamble to the START treaty refers to the Nuclear Nonproliferation Treaty (NPT), the ABM Treaty, and the Washington Summit Joint Statement of June 1, 1990.

RUSSIAN UNILATERAL STATEMENT

4. Senator LEVIN. Secretary Clinton, Russia made a unilateral statement concerning missile defense to accompany the New START. Is that unilateral statement part of the treaty?

Secretary CLINTON. No. The unilateral statements are not integral parts of the treaty, and they are not legally binding. The unilateral statement made by the Russian Federation reflects its current position that the "extraordinary events" that could justify Russia's withdrawal from the treaty include a build-up in the missile defense system capabilities by the United States that would give rise to a threat to the Russian strategic nuclear force potential. The United States did not agree to Russia's unilateral statement, and the statement does not change the legal rights or obligations of the Parties under the treaty.

5. Senator LEVIN. Secretary Clinton, does the Russian unilateral statement have any binding effect on the United States?

Secretary CLINTON. No. The Russian unilateral statement does not change the legal rights or obligations of the parties under the treaty and is not legally binding.

With regard to these types of unilateral statements, it is noteworthy that in 1991 in connection with the START treaty, the Soviet Union released a unilateral statement on "the interrelationship between reductions in strategic offensive arms and compliance with the treaty between the United States and the U.S.S.R. on the Limitation of Anti-Ballistic Missile Systems," which stated that the START treaty may be effective and viable only under conditions of compliance with the ABM Treaty, and further that the extraordinary events referred to in the relevant provision in the START treaty also include events related to withdrawal by one of the Parties from the ABM Treaty or related to its material breach. When the United States withdrew from the ABM Treaty in 2002, however, the Russian Federation (as a successor state to the Soviet Union) did not withdraw from the START treaty.

In both U.S. unilateral statements—made in connection with the New START treaty and with the START treaty—the United States provided reasons why its activities related to missile defense should not raise concerns for Russia (or, in the case of START, the Soviet Union).

6. Senator LEVIN. Secretary Gates, does the Russian unilateral statement accompanying the treaty limit our missile defenses or change our missile defense policy, plans, or programs?

Secretary GATES. No.

U.S. UNILATERAL STATEMENT

7. Senator LEVIN. Secretary Gates, the United States issued a unilateral statement concerning missile defense in connection with the New START, noting the Russian unilateral statement. The United States statement says, "United States missile defense systems would be employed to defend the United States against limited missile launches, and to defend its deployed forces, allies, and partners against regional threats. The United States intends to continue improving and deploying its missile defense systems in order to defend itself against limited attack and as part of our collaborative approach to strengthening stability in key regions." Does the U.S. unilateral statement still reflect U.S. policy, and is it an accurate indication of what the United States plans to do with respect to missile defense?

Secretary GATES. Yes.

PROHIBITION ON CONVERSION OF SILOS FOR MISSILE DEFENSE

8. Senator LEVIN. Admiral Mullen, Article V, Paragraph 3, of the New START would prohibit the future conversion of intercontinental ballistic missile (ICBM) silos or submarine-launched ballistic missile (SLBM) launchers to be used for missile defense interceptors, and vice versa. Beyond the fact that we have no plans to do such conversions, and that it would not make sense to do so, there is the larger issue of potential misunderstanding or miscalculation if either side could use silos of one type for the other purpose.

At the hearing, Secretary Gates agreed that it would be destabilizing if either side were to launch missile defense interceptors from ICBM silos or from ballistic missile submarines (SSBN), and that such launches could appear to the other side to be launches of ICBMs or SLBMs. Do you agree?

Admiral MULLEN. Yes, I agree with Secretary Gates testimony, "I think it would be destabilizing if you didn't know what was coming out of a missile silo." This was one of the primary considerations when the decision was made not to modify or convert ICBM silos into missile defense silos. As Secretary Gates stated, "Any of these things that are confusing to a party on the other side I think needs to be dealt with very carefully."

9. Senator LEVIN. Secretary Gates and Admiral Mullen, do you agree that the silo conversion prohibition in Article V, Paragraph 3 of the treaty would avoid such destabilizing miscalculation and risk, and thus serves our national security interests?

Secretary GATES and Admiral MULLEN. Keeping our ground-based interceptor (GBI) silos geographically separated from our ICBM silos could reduce the risk of miscalculation by Russia. The potential miscalculation would be an erroneous Russian assessment that a GBI for missile defense launched from within a known U.S. ICBM field was a U.S. ICBM. It is difficult to assess the magnitude of this risk, but mitigating the risk of any miscalculation related to missile launches serves our national security interests.

IMPACT ON MILITARY POLICY AND OPERATIONS

10. Senator LEVIN. Admiral Mullen, what impact would not ratifying the New START have on how you think about military policy and operations?

Admiral MULLEN. The New START treaty achieves important and necessary balance between three critical aims. It allows us to retain a strong and flexible American nuclear deterrent. It helps strengthen openness and transparency in our relationship with Russia. It also demonstrates our national commitment to reducing the worldwide risk of nuclear incident resulting from the continuing proliferation of nuclear weapons.

Without this treaty or other similar agreement, the uncertainly of Russian actions with respect to their nuclear forces would result in U.S. planners having to conduct worse case analyses thus forcing the United States to maintain higher numbers of nuclear forces than would be necessary. Therefore, the purpose of the New START treaty is to provide predictability and stability at lower force levels. Without such this treaty there would still be stability but at much higher costs driven by the perceived need for higher force structures.

Without a successor agreement to the START treaty, transparency and strategic stability in the U.S.-Russian nuclear relationship would erode over time. The lack of such an agreement would increase the probability of suspicion and misunderstanding which would adversely affect the U.S.-Russian relationship.

As the NPR stipulates, the United States can—reduce the role of U.S. nuclear weapons in our national security strategy, maintain strategic deterrence and stability at reduced nuclear force levels, strengthen regional deterrence and reassure U.S. allies and partners, and sustain a safe, secure, and effective nuclear arsenal.

Finally, fundamental changes in the international security environment in recent years—including the continuing improvement of U.S. conventional military capabilities, major improvements in missile defenses, and the easing of the Cold War rivalry—enable us to fulfill our national security objectives at significantly lower nuclear force levels and with reduced reliance on nuclear weapons. Therefore, without jeopardizing our traditional deterrence and reassurance goals, we are now able to shape our nuclear weapons policies and force structure in ways that will better enable us to meet our most pressing security challenges.

MAINTAINING THE STOCKPILE

11. Senator LEVIN. Secretary Chu, from a technical perspective, do you and the laboratory directors believe that the nuclear stockpile can be maintained safely, securely, and reliably?

Secretary CHU. Yes. By pursuing sound stockpile stewardship and management programs for extending the life of existing U.S. nuclear weapons, ensuring our scientific and engineering capabilities, and making necessary infrastructure and modernization investments in the Nuclear Security Enterprise, we will be able to maintain the safety, security, and reliability of the nuclear weapons stockpile.

The Nuclear Posture Review (NPR) describes the policies, and the Stockpile Stewardship and Management Plan details the approach the United States will pursue to extend the life of the U.S. nuclear weapons stockpile. The directors of the Los Alamos, Lawrence Livermore, and Sandia National Laboratories determined that the plan "provides the necessary technical flexibility to manage the nuclear stockpile into the future with an acceptable level of risk."

12. Senator LEVIN. Secretary Chu, what are the impacts on your ability to maintain the stockpile safely, securely, and reliably if there are substantial reductions to the Department of Energy (DOE) National Nuclear Security Administration (NNSA) budget request for fiscal year 2011?

Secretary CHU. Substantial reductions to the President's request would have significant, immediate and long-term implications for the ability of DOE/NNSA to maintain the stockpile safely, securely, and effectively. Specific implications would depend on the amount and target of any reductions, and determining how the reduced resources would affect the stockpile; science, technology, and engineering (ST&E); and modernization milestones. The President's fiscal year 2011 budget proposal initiates a multi-year investment plan with substantial budget increases to extend the life of the stockpile, redress shortfalls for stockpile surveillance activities and stockpile certification through investments in the ST&E base, and maintain and modernize the supporting infrastructure. The fiscal year 2011 budget request is necessary and executable based on the requirements and the ability of the Nuclear Security Enterprise to "ramp up" efficiently within the constraints of time, capacity, and capability to spend increased funds. However, we are still in the process of de-

veloping a baseline budget for four significant budget drivers: the Uranium Processing Facility (UPF), the Chemistry and Metallurgy Replacement Facility (CMRR), and the B61 and W78 life extension programs (LEPs). Thus, there is an expectation for some of these numbers to change as we achieve more fidelity in the budget.

13. Senator LEVIN. Secretary Gates, from a Department of Defense (DOD) perspective, what is the impact on DOD if there are substantial reductions in the NNSA budget request for fiscal year 2011?

Secretary GATES. Substantial reductions would be a serious setback to efforts to modernize the nuclear weapons complex and address the requirements of stockpile sustainment, both of which are key priorities of the NPR and essential to underwriting the national interest as New START is implemented. To be more specific: Substantial reductions in the NNSA budget would affect delivery of the W76–1 LEP, which is currently in production and being delivered to the fleet. There will be more W76–1 deployed weapons than any others in our strategic arsenal, replacing the W76–0, which has already exceeded its original design life by at least a decade. It would also affect completion of the Phase 6.2/2A study for the B61 LEP and threaten the needed delivery of the First Production Unit (FPU) in 2017, which could result in a gap in coverage for the extended deterrence mission. Substantial budget reductions could also affect recent ongoing studies for replacing the W–78 ICBM warhead. In addition, the Joint NNSA/DOD Surveillance Program, which has been underfunded for the past several years, could also be threatened by substantial reductions. We rely on the Surveillance Program to provide much of the data for annual assessment of safety and reliability of all of the systems in the stockpile as well as the determination of any need for an underground test. Finally, portions of the NNSA fiscal year 2011 budget will be committed to the early design and development of critical infrastructure projects, specifically the Chemical and Metallurgical Research Facility Replacement (CMRR) at Los Alamos, which is critical to future plutonium operations, and the Uranium Processing Facility (UPF) at Oak Ridge, which replaces Manhattan Project-era facilities that are increasingly expensive to operate, secure, and update. Both of these facilities, as well as other NNSA infrastructure, will be critical to upgrading the safety, security and effectiveness of the stockpile for the 21st century.

NUCLEAR POSTURE REVIEW AND THE TREATY

14. Senator LEVIN. Secretary Chu, the NPR says that the full range of life extension options should be studied, but that in deciding which life extension option should move to the engineering phase, the Nuclear Weapons Council (NWC) should give "strong preference for refurbishment or reuse," that is, refurbishing the nuclear component or reusing existing nuclear components. Replacement of nuclear components would be "undertaken only if critical Stockpile Management Program goals could not be met, and if specifically authorized by the President." Do the laboratory directors feel constrained in their discretion to study options for life extensions by the direction to the NWC?

Secretary CHU. No. While the NPR is clear that the United States will give preference to nuclear component refurbishment or reuse, it is equally clear that the full range of options will be considered for each warhead LEP, including replacement of nuclear components. The report entitled: "The New START Treaty Framework and Nuclear Force Structure Plans," submitted to Congress pursuant to section 1251 of the National Defense Authorization Act for Fiscal Year 2010, further explains that "[w]hile the NPR expresses a policy preference for refurbishment and reuse in decisions to proceed from study to engineering development, the Laboratory Directors will be expected to provide findings associated with the full range of LEP approaches, and to make a set of recommendations based solely on their best technical assessments of the ability of each LEP approach to meet critical stockpile management goals (weapon system safety, security, and effectiveness)." Moreover, as noted in their April 9, 2010, statement on the NPR, the Laboratory Directors affirmed that this approach "provides the necessary technical flexibility to manage the nuclear stockpile into the future with an acceptable level of risk."

15. Senator LEVIN. Secretary Gates and Secretary Chu, have you provided any guidance to the laboratory directors that would limit the life extension options that they study only to refurbishment or reuse?

Secretary GATES. No.

Secretary CHU. No; I have placed no such limitations on the laboratory directors. To the contrary, as made clear in the report entitled: "The New START Treaty

Framework and Nuclear Force Structure Plans," submitted to Congress pursuant to section 1251 of the National Defense Authorization Act for Fiscal Year 2010, "the Laboratory Directors will be expected to provide findings associated with the full range of LEP approaches, and to make a set of recommendations based solely on their best technical assessments of the ability of each LEP approach to meet critical stockpile management goals (weapon system safety, security, and effectiveness)."

QUESTIONS SUBMITTED BY SENATOR MARK BEGICH

HOMELAND DEFENSE

16. Senator BEGICH. Secretary Clinton and Secretary Gates, does the New START limit the ability of the United States to defend the Homeland against current and future Iranian and North Korean ICBM threats?

Secretary CLINTON and Secretary GATES. No. The New START treaty does not constrain the United States from developing and deploying the most effective missile defenses possible, nor does the treaty add any additional cost or obstacles to our missile defense plans.

17. Senator BEGICH. Secretary Clinton and Secretary Gates, does the New START limit our hedge strategy against future ballistic missile threats by hindering completion of Missile Field 2 at Fort Greely, AK, or testing the two-stage ground-based interceptor (GBI)?

Secretary CLINTON and Secretary GATES. No. The New START treaty does not constrain any of our missile defense plans, including our ability to hedge against future ballistic missile threats by completing missile field 2, testing the two-stage GBI, and other steps as appropriate.

UNILATERAL STATEMENT

18. Senator BEGICH. Admiral Mullen, what is your assessment of Russia's unilateral statement regarding missile defense and the ability of the United States to defend itself from threats in the near-, mid-, and long-term?

Admiral MULLEN. Russia has issued a unilateral statement on missile defense expressing its view. We have not agreed to this view and we are not bound by this unilateral statement. In fact, we've issued our own unilateral statement making it clear that the United States intends to continue improving and deploying our missile defense system and nothing in this treaty prevents us from doing so.

The United States is currently protected against limited ICBM attacks as a result of investments made over the past decade in a system centered on GMD. Given uncertainty about the future ICBM threat, including the rate at which it will mature, it is important that the United States maintain an advantageous position. Accordingly, the United States will:

- Deploy new sensors in Europe to improve cueing for missiles launched at the United States
- Invest in further development of the Standard Missile-3 (SM–3) for future land-based deployment as the ICBM threat matures
- Increase investments in sensors and early-intercept kill systems to help defeat missile defense countermeasures
- Pursue a number of new GMD system enhancements, develop next generation missile defense capabilities, and advance other hedging strategies including continued development and assessment of a two-stage ground-based interceptor

Additionally, Russia has repeatedly expressed concerns that U.S. missile defenses adversely affect their own strategic capabilities and interests. The United States will continue to engage them on this issue to help them better understand the stabilizing benefits of missile defense. A strategic dialogue with Russia will allow the United States to explain that our missile defenses and any future U.S. conventionally-armed long-range ballistic missile systems are designed to address newly emerging regional threats, and are not intended to affect the strategic balance with Russia.

19. Senator BEGICH. Secretary Clinton and Secretary Gates, are there any types of ballistic missile defense (BMD) activities or policies the United States plans to avoid or delay to diminish the chances that the Russians will withdraw from the New START?

Secretary CLINTON. No.

Secretary GATES. No.

JOINT MISSILE DEFENSE ASSESSMENT

20. Senator BEGICH. Secretary Clinton and Secretary Gates, in his speech in Prague on April 8, President Obama said the United States and Russia would conduct a joint assessment of emerging ballistic missiles. Please describe this assessment.

Secretary CLINTON and Secretary GATES. President Obama and President Medvedev agreed at their July 2009 Moscow Summit that the United States and Russia should undertake a joint assessment of ballistic missile challenges and threats. The Joint Threat Assessment (JTA) is intended to identify our mutual understandings of the existing and emerging challenges and threats posed by ballistic missiles. We hope that this exchange of information and assessments will provide each other a better understanding of our respective perspectives on threats to the security of the United States, Russia, and Europe. It is our hope that an improved understanding of missile threats will inform how we can work together to address them.

21. Senator BEGICH. Secretary Clinton and Secretary Gates, how will the joint missile defense assessment with Russia affect U.S. policy towards missile defense?

Secretary CLINTON and Secretary GATES. The purpose of the Joint Threat Assessment (JTA) is to increase our mutual understanding of the ballistic missile threat. The JTA may also provide a potential basis for additional cooperative activities between our two nations—including, but not limited to, missile defense. However, the results of the JTA discussions will not affect U.S. BMD policy, as described in the 2010 Ballistic Missile Defense Review Report, nor will it determine our response to the threat, which will be flexible, adaptable, and scalable to counter the evolving ballistic missile threat from the Middle East and northeast Asia.

22. Senator BEGICH. Secretary Clinton and Secretary Gates, when will the joint missile defense assessment be completed and available for Congress' review?

Secretary CLINTON and Secretary GATES. Our goal is to complete this joint effort this fall. We plan to brief the relevant congressional committees on the results of this joint effort after it is completed.

QUESTIONS SUBMITTED BY SENATOR ROLAND W. BURRIS

VERIFICATION CHANGES

23. Senator BURRIS. Secretary Clinton, the New START addresses nuclear stockpile levels and the number of weapons each nation can maintain. What verification changes have been made from past agreements to ensure both parties meet their obligations?

Secretary CLINTON. The New START treaty's verification regime, which includes onsite inspections, a comprehensive database, a wide range of notifications, and unique identifiers, as discussed below, is designed to permit verification of each party's compliance with the treaty's provisions, including the three central numerical limits contained in Article II of the treaty, as well as the numbers and status of treaty-accountable strategic offensive arms.

Onsite Inspections - The treaty provides that each party can conduct up to 18 onsite inspections each year at operating bases for ICBMs, ballistic missile submarines (SSBNs), and nuclear-capable heavy bombers, as well as storage facilities, test ranges, and conversion and elimination facilities. These inspection activities contribute to the verification of compliance with the treaty's central limits by confirming the accuracy of declared data on the numbers of deployed and nondeployed ICBMs, SLBMs, and nuclear-capable heavy bombers and on the warheads located on or counted for them, as well as conversions and eliminations of strategic offensive arms.

Comprehensive Database - A comprehensive database, which will be initially populated 45 days after the treaty enters into force, will receive new data as notifications of certain changes in treaty data of the two parties are conveyed in accordance with Treaty provisions. It will also be updated comprehensively every 6 months. Thus, it will help provide the United States with a "rolling" overall picture of Russia's strategic offensive forces.

Notifications - The treaty mandates numerous notifications which will help to track the movement and changes in status of systems covered by the treaty.

Unique Identifiers (UID) - Unique alpha-numeric identifiers assigned to each ICBM, SLBM, and heavy bomber, when combined with required notifications and the comprehensive database, will contribute to our ability to track the disposition of treaty-accountable systems throughout their life cycles.

RUSSIAN PARLIAMENT

24. Senator BURRIS. Secretary Clinton, where is Russia in the ratification process at this point?

Secretary CLINTON. The Russian Duma has begun to consider the treaty, including conducting hearings. According to press reports, the Duma's Committee on International Affairs and the Duma's Defense Committee have both recommended that the full Duma approve the treaty. The upper house of the Russian Parliament, the Federation Council, must also approve the treaty. Russian officials from both the executive branch and legislative branch have consistently indicated a desire to coordinate their ratification process with ours so that both countries consider and vote on the treaty around the same time.

25. Senator BURRIS. Secretary Clinton, does it appear the Russian Parliament will ratify the New START?

Secretary CLINTON. Russian officials from both the executive branch and legislative branch have consistently indicated a desire to coordinate their ratification process with ours so that both countries consider and vote on the treaty around the same time. I am very hopeful that the Russian Parliament will approve the treaty, but that, of course, will be a decision for the elected representatives of the Russian people.

AFTER THE NEW START

26. Senator BURRIS. Secretary Clinton, President Obama has indicated that the New START is only a first step and is meant to set the stage for further cuts. What new issues do you see being addressed in a follow-on treaty, including levels of nuclear arms and tactical nuclear weapons?

Secretary CLINTON. As stated in the NPR, the President has directed a review of post-New START arms control objectives to consider further reductions in nuclear weapons.

Specifically, the U.S. goals in post-New START bilateral negotiations with Russia will include reducing non-strategic/tactical nuclear weapons and nondeployed nuclear weapons, as well as deployed strategic nuclear weapons on ICBMs, SLBMs, and nuclear-capable heavy bombers. Any specific U.S.-Russian discussions on U.S. non-strategic/tactical nuclear weapons will take place in the context of continued close consultation with U.S. allies and partners.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

MISSILE DEFENSE IN NEGOTIATIONS

27. Senator MCCAIN. Secretary Gates, irrespective of threats from the Russians to withdraw from the New START, is this administration committed to funding, developing, and deploying all elements of the phased adaptive approach for missile defense in Europe as well as implementing the strategy as portrayed in the BMD review?

Secretary GATES. Yes. As outlined during the announcement of the Phased Adaptive Approach in Europe last September and in the Report of the 2010 BMD Review, while further advances in technology or future changes in the threat could modify the details or timing of later phases, we plan to deploy all four phases of the PAA in Europe, including Phase Four.

28. Senator MCCAIN. Secretary Clinton, in her prepared remarks before the Atlantic Council in April, Under Secretary of State Ellen Tauscher stated that "Our Russian friends needed some assurances as it negotiated deeper reductions in the absence of an Anti-Ballistic Missile (ABM) Treaty. The United States made a unilateral statement to clarify that our missile defense systems are not intended to affect the strategic balance with Russia . . . " Why was it necessary to provide such assurances to Russia?

Secretary CLINTON. A number of public statements made by Russian leaders about the treaty have shown that they considered such assurances necessary in the

context of reaching agreement on the treaty. Under Secretary Tauscher's statement to the Atlantic Council was based on standing U.S. policy as articulated in the 2010 Ballistic Missile Defense Review that "while the GMD system would be employed to defend the United States against limited missile launches from any source, it does not have the capacity to cope with large scale Russian or Chinese missile attacks, and is not intended to affect the strategic balance with those countries."

The United States has made clear that U.S. missile defense efforts are not directed against Russia. As Secretary Gates stated in his May 18 testimony before the Senate Foreign Relations Committee:

> "Under the last administration, as well as under this one, it has been U.S. policy not to build a missile defense that would render useless Russia's nuclear capabilities. It has been a missile defense intended to protect against rogue nations such as North Korea and Iran, or countries that have very limited capabilities. The systems that we have, the systems that originated and have been funded in the Bush administration, as well as in this administration, are not focused on trying to render useless Russia's nuclear capability. That, in our view, as in theirs, would be enormously destabilizing, not to mention unbelievably expensive."

Russia has expressed concerns that U.S. BMD capabilities could eventually be a threat to Russia's nuclear deterrent; the United States, therefore, sought to convey to Russia the underlying approach outlined by Secretary Gates. To this end, we have provided, and will continue to provide, policy and technical explanations regarding why U.S. BMD capabilities such as the European-based Phased Adaptive Approach do not and cannot pose a threat to Russian strategic deterrent forces.

29. Senator McCAIN. Secretary Clinton, did our negotiators receive assurances from Russia that they will not object to the full deployment of all four phases of the phased adaptive approach in Europe?

Secretary CLINTON. No; these negotiations were about strategic offensive arms, not missile defense. This past April Russian Foreign Minister Lavrov characterized the first two phases of the European-based Phased Adaptive Approach (EPAA) as "regional systems" that pose no threat to Russia's strategic nuclear forces. On the latter two phases, he noted that Russia would need to evaluate them should they contain "strategic features." We have provided, and will continue to provide, policy and technical explanations regarding why U.S. ballistic missile defense capabilities such as those to be deployed throughout all four phases of the EPAA will not pose a threat to Russian strategic deterrent forces.

30. Senator McCAIN. Secretary Clinton, did our negotiators receive assurances from Russia that they will not object to the potential need to increase the number of GBIs in California and Alaska if the threat from North Korea or Iran materializes sooner than expected?

Secretary CLINTON. This issue was not discussed in the New START negotiations. U.S. negotiators did not seek such assurances, but the United States made clear in its unilateral statement that it intended to continue improving and deploying missile defense systems.

31. Senator McCAIN. Secretary Clinton, if we were going to offer assurances on missile defense, why didn't we demand similar assurances from the Russians on tactical nuclear weapons?

Secretary CLINTON. The U.S. assurances on missile defense have been a reiteration of standing U.S. policy as articulated in the 2010 BMD Review, and explanations of the capabilities of current and planned systems. A more ambitious treaty that addressed tactical nuclear weapons would have taken much longer to complete, adding significantly to the time before a successor agreement, including verification measures, could enter into force following START's expiration in December 2009. This approach was consistent with the bipartisan Strategic Posture Commission's recommendation to "pursue a step-by-step approach," and to make the first step "modest and straightforward." President Medvedev has expressed interest in future discussions on measures to further reduce both nations' nuclear arsenals. We intend to raise strategic and tactical weapons, including nondeployed nuclear weapons, in those discussions.

RUSSIAN TACTICAL NUCLEAR WEAPONS

32. Senator McCAIN. Secretary Clinton, in written testimony before the Senate Foreign Relations Committee, Former Secretary of State Henry Kissinger stated,

"As strategic arsenals are reduced, the distinction between tactical and strategic nuclear weapons is bound to erode. The large Russian stockpile of tactical nuclear weapons, unmatched by a comparable American deployment, could threaten the ability to undertake extended deterrence. This challenge is particularly urgent given the possible extension of guarantees in response to Iran's nuclear weapons program and other programs that may flow from it." Given the significant interrelationship between strategic and tactical offensive weapons, why does the treaty not address the Russian and U.S. disparity?

Secretary CLINTON. From the outset the New START treaty was intended to replace the START treaty, which was about strategic offensive forces. The desire to conclude the New START treaty quickly in light of the pending expiration of the START treaty, combined with the need to consult closely with our allies before addressing tactical nuclear weapons, did not support broadening the scope of the New START treaty to address tactical nuclear weapons. Deferring negotiations on tactical nuclear weapons until after a START successor agreement had been concluded was also the recommendation of the Perry-Schlesinger Congressional Strategic Posture Commission.

33. Senator MCCAIN. Secretary Clinton, what leverage do we have to compel Russia to discuss reductions of its tactical arsenal in the future if we were to ratify the New START?

Secretary CLINTON. The New START treaty sets the stage for further negotiations with Russia on measures to reduce both our strategic and tactical nuclear weapons, including nondeployed nuclear weapons. President Medvedev has expressed interest in future discussions on measures to reduce both nations' nuclear arsenals. We intend to raise strategic and tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions.

Leverage for future negotiations will come from several directions. The Russians are concerned with the totality of the U.S. nuclear stockpile, particularly the upload capability of our strategic ballistic missiles, as well as U.S. tactical nuclear weapons forward-deployed in NATO countries. Also, Article VI of the Nuclear NPT stipulates that nuclear weapons states are to work toward achieving nuclear disarmament. The Russians want to be seen favorably as working toward this goal.

FORCE STRUCTURE

34. Senator MCCAIN. Admiral Mullen, the 1251 Report, received by Congress in conjunction with the New START documentation, outlined a baseline nuclear force structure and specified retaining up to 420 deployed ICBMs after a cut of at least 30 silos; retaining up to 60 nuclear-capable bombers after a reduction of 34 bombers from the current deployable force; and retaining all of the current 14 SSBNs with no more than 240 SLBMs deployed at any time. Given the provided ranges in the 1251 Report account for 720 delivery vehicles, 20 above the deployed limit under the New START, when does DOD intend to provide the Senate with its final force structure?

Admiral MULLEN. The NPR assessed the appropriate force structure for each Triad leg, namely the required numbers of strategic nuclear submarines (SSBNs) and SLBMs, ICBMs, and nuclear-capable heavy bombers. DOD continues to study the final force structure under New START and will announce the end state force structure at the appropriate time. But the final force structure will allow for:

- Supporting strategic stability through an assured second-strike capability
- Retaining sufficient force structure in each leg to allow the ability to hedge effectively against technical and geopolitical developments by preserving our capability to upload all three legs of the Triad as well as change our force posture as necessary
- Retaining a margin above the minimum required nuclear force structure for the possible addition of non-nuclear prompt-global strike capabilities (conventionally-armed ICBMs or SLBMs) that would be accountable under the treaty.

Maintaining the needed capabilities over the next several decades or more, including retaining a sufficient cadre of trained military and civilian personnel and adequate infrastructure.

35. Senator MCCAIN. Admiral Mullen, have you yet estimated how the Russians will configure their strategic forces under the New START?

Admiral MULLEN. The classified National Intelligence Estimate (NIE) drafted by the Intelligence Community published on 30 June 2010 provides an analysis of how

the Russian Federation will potentially configure their strategic forces under the New START. In formulating the U.S. negotiating position and during treaty negotiations, we looked at a wide array of how Russia could arrange its nuclear force structure. We are confident that the forces we deploy during the life of the treaty can address any potential threat to U.S national security from Russian nuclear forces.

Additionally, the U.S. nuclear force structure, as articulated in the NPR, was designed to account for possible adjustments in the Russian strategic force configuration that may be implemented in response to New START. The configuration of U.S. strategic forces in the Triad, and the administration's continuing commitment to maintaining U.S. forces in the Triad structure under New START, maintains strategic deterrence and stability, strengthens regional deterrence, reassures U.S. allies and partners, and sustains a safe, secure, and effective nuclear arsenal. NPR analysis focused on retaining sufficient force structure in each leg of the Triad to allow the ability to hedge effectively against technical and geopolitical developments by preserving our capability to "upload" our nuclear forces as well as change our force posture as necessary.

36. Senator MCCAIN. Admiral Mullen, have you conducted a net assessment to determine if the United States can carry out its deterrence mission under a likely mixed Russian strategic and tactical nuclear weapons force structure? If so, please provide details.

Admiral MULLEN. The base objectives for NPR analysis included reducing the role of U.S. nuclear weapons in U.S. national security strategy while maintaining strategic deterrence and stability, strengthening regional deterrence and reassuring U.S. allies and partners, and sustaining a safe, secure, and effective nuclear arsenal. The United States achieves deterrence vis-á-vis Russia through DOD's Triad force structure. The administration is committed to the Triad, namely maintaining the required numbers of strategic nuclear submarines and SLBMs, ICBMs, and nuclear-capable heavy bombers. The administration firmly believes in retaining sufficient force structure in each leg to allow the ability to hedge effectively by shifting weight from one Triad leg to another if necessary due to unexpected technological or operational problems.

While Russia maintains a large stockpile of non-strategic (or "tactical") nuclear weapons, the United States has reduced non-strategic nuclear weapons dramatically since the end of the Cold War and keeps only a limited number of forward deployed nuclear weapons in Europe, plus a small number of nuclear weapons stored in the United States for possible overseas deployment in support of extended deterrence to allies and partners worldwide.

In support of U.S. extended deterrence goals, the NPR called for retaining the capability to forward-deploy U.S. nuclear weapons on tactical fighter-bombers and heavy bombers, and proceed with full scope life extension for the B–61 bomb including enhancing safety, security, and use control. Additionally, the United States will continue to maintain and develop long-range strike capabilities that supplement U.S. forward military presence and strengthen regional deterrence, and also continue, where appropriate, to expand consultations with allies and partners to address how to ensure the credibility and effectiveness of the U.S. extended deterrent.

RUSSIAN VERIFICATION AND COMPLIANCE REPORTS

37. Senator MCCAIN. Secretary Clinton, I understand that we have yet to receive requested data on Russian compliance and verification since 2005 under START. Please explain why this delay occurred.

Secretary CLINTON. The 2010 Report on Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments, including information on Russia's compliance with START through the expiration of the treaty, was submitted to Congress on July 1, 2010. This administration was committed to ensuring that Congress received a comprehensive report.

38. Senator MCCAIN. Secretary Clinton, when does the administration plan to make START compliance and verification data available to the Senate?

Secretary CLINTON. Issues related to Russia's compliance with verification and inspection procedures associated with the START treaty are addressed in the Report on Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments that was provided to the Senate on July 1, 2010.

NEGOTIATING RECORD

39. Senator MCCAIN. Secretary Clinton, consistent with past practice on arms control treaties, including the Intermediate-Range Nuclear Forces Treaty and START, when does the administration intend to provide the Senate with the negotiating record of the New START, including all elements of the record dealing with missile defenses, tactical nuclear weapons, and limiting prompt global strike?

Secretary CLINTON. So far as we are aware, Senators were not provided full access to the negotiating record during Senate consideration of the START treaty. Nor was the negotiating record provided to the Senate during its consideration of the ABM Treaty. Rather, information from the negotiating record was provided to the Senate in relation to a controversial interpretation of the ABM Treaty more than a decade after the Senate had provided its approval and the treaty had entered into force.

As the Senate Foreign Relations Committee noted in its report on the treaty between the United States and the U.S.S.R. on the elimination of their Intermediate-Range and Shorter-Range Missiles, "a systematic expectation of Senate perusal of every key treaty's 'negotiating record' could be expected to inhibit candor during future negotiations and induce posturing on the part of U.S. negotiators and their counterparts during sensitive discussions." The committee report further noted that regularly providing the negotiating record would ultimately "weaken the treaty-making process" and "damage American diplomacy."

Of course, Senators being asked to provide advice and consent to ratification of a treaty should have a full understanding of what obligations would be undertaken by the United States upon ratification of that treaty. Thus, when a treaty is submitted to the Senate by the President it is accompanied by a detailed article-by-article analysis of the treaty. The analysis of the New START treaty transmitted to the Senate by the President on May 13, 2010, is nearly 200 pages and provides information on every provision of the treaty, Protocol, and Annexes. This analysis includes relevant information drawn from the negotiating record. The treaty text and these materials provide a comprehensive picture of U.S. obligations under the treaty. Should you have any outstanding questions, we are committed to providing answers in detailed briefings, in a classified session, if needed.

DUAL-CAPABLE JOINT STRIKE FIGHTER

40. Senator MCCAIN. Secretary Gates, the development of the dual-capable nuclear and conventional variant of the F–35 Joint Strike Fighter (JSF) to replace aging dual-capable F–16s is a primary driver for the B–61 2017 deadline. How critical is the timely delivery of the dual-capable F–35 to the extended deterrence mission?

Secretary GATES. Timely delivery of a dual-capable F–35 is important to the extended deterrence mission, because U.S. F–16 dual capable aircraft (DCA) currently performing the extended deterrence mission are expected to begin to reach service life limits in the 2017 timeframe, and as such, need to be replaced.

It is important to note that the development of the F–35 is only one of several drivers for the B61 LEP 2017 First Production Unit (FPU) requirement. Several components of both the B61–3 and -4 non-strategic variants, and the B61–7 strategic variants are reaching end of life and need to be replaced to support both the extended and strategic deterrence missions.

41. Senator MCCAIN. Secretary Gates, how confident are you that the dual-capable F–35 will be available as scheduled in 2017?

Secretary GATES. Based on the recent F–35 program restructure and Nunn-McCurdy breach, a new program baseline is currently in work and those results will help inform the Air Force on any possible effects to the Dual Capable Aircraft timeline.

INFRASTRUCTURE MODERNIZATION

42. Senator MCCAIN. Secretary Chu, with the release of the NPR, Secretary Gates announced that DOD would be transferring $5 billion over the next 5 years to DOE to address infrastructure modernization needs. This increase is welcome, and absolutely necessary, and must supplement significant long-term increases in DOE's own budget. How will DOD funding be utilized by NNSA?

Secretary CHU. The Department of Defense transferred almost $4.6 billion of top line budget authority over the period of fiscal years 2011–2015 to the NNSA weapon

activities for infrastructure modernization, LEPs, and enhanced stockpile stewardship. This transfer, if appropriated by Congress, would be utilized to support:

- Design and initial construction of the Chemistry and Metallurgy Research Replacement Nuclear Facility;
- Design and initial construction of the Uranium Processing Facility;
- Creation of a sustainable plutonium pit manufacturing capacity at the PF–4 facility;
- Completion of the ongoing LEP for the W76 warhead and the B61 bomb;
- Beginning LEP studies to explore the path forward for the W78 ICBM warhead;
- Revitalizing the warhead surveillance effort and associated science and technology support; and
- Protecting the human capital base at U.S. nuclear weapons laboratories—including the ability to design nuclear warheads as well as development and engineering expertise and capabilities—through a stockpile stewardship program that fully exercises these capabilities.

The Departments of Defense and Energy have agreed that their staffs will conduct and participate in the following reviews: semi-annual programmatic reviews by the Nuclear Weapons Council and annual NNSA programming and budgeting reviews.

In addition, the Department of Defense transferred another nearly $1.1 billion to Naval Reactors over the period of fiscal years 2011–2015 for reactor design and development.

43. Senator McCain. Secretary Chu, can you confirm that DOE will not reduce its future years spending requests for NNSA as a result of DOD contribution?

Secretary Chu. That is correct. DOE will not reduce its request for NNSA's Future Years Nuclear Security Program as a result of the transfer of top line budget authority from the Department of Defense. The President's fiscal year 2011 budget proposal initiates a multi-year investment plan that includes substantial budget increases to address shortfalls in stockpile surveillance activities and in the science, technology, and engineering base that support stockpile certification, and to maintain and modernize the supporting infrastructure.

RUSSIAN RESOLUTION ON RATIFICATION

44. Senator McCain. Secretary Clinton, as you are aware, the Russian law passed pursuant to START II ratification obligated in statute that Russia withdraw from START II if the United States withdrew from the ABM treaty. Has the Russian Resolution on Ratification for the New START been made public yet?

Secretary Clinton. No.

45. Senator McCain. Secretary Clinton, what is the projected timeline for the Russian Resolution on Ratification to be made public, if at all?

Secretary Clinton. We do not know, although we would anticipate that the resolution may be made public when the Duma votes on it.

46. Senator McCain. Secretary Clinton, while START II never entered into force, is there any reason to believe that Russia will not pass a similar statute with respect to missile defense this time?

Secretary Clinton. We have no information regarding what might be in the Russian resolution of ratification for the New START treaty.

QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

TACTICAL NUCLEAR WEAPONS

47. Senator Inhofe. Secretary Clinton, Secretary Gates, and Admiral Mullen, the 2010 NPR concluded that "large disparities in nuclear capabilities could raise concerns on both sides and among U.S. allies and partners, and may not be conducive to maintaining a stable, long-term relationship, especially as nuclear forces are significantly reduced." Henry Kissinger stated on May 25, 2010, "The large Russian stockpile of tactical nuclear weapons, unmatched by a comparable American deployment, could threaten the ability to undertake extended deterrence." The Perry-Schlesinger Strategic Posture Commission report notes, "The combination of new warhead designs, the estimated production capability for new nuclear warheads, and precision delivery systems such as the Iskander short-range tactical ballistic

missile, open up new possibilities for Russian efforts to threaten to use nuclear weapons to influence regional conflicts." Senator Biden said in March 2003, "After entry into force of the Moscow Treaty, getting a handle on Russian tactical nuclear weapons must be a top arms control and nonproliferation objective of the United States Government." Why was limiting tactical nuclear weapons not an objective for this agreement?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. We did not make limiting tactical nuclear weapons an objective for this agreement because from the outset the New START treaty was intended to replace the START treaty, which was about strategic offensive forces. The desire to minimize the time before a successor agreement, including verification measures, could enter into force following START's expiration in December 2009, combined with the need to consult closely with our allies before addressing tactical nuclear weapons did not support broadening the scope of the New START treaty to address tactical nuclear weapons. Deferring negotiations on tactical nuclear weapons until after a START successor agreement had been concluded was also the recommendation of the Perry-Schlesinger Congressional Strategic Posture Commission.

48. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, wasn't the Senate told when it approved the Strategic Offensive Reductions Treaty (SORT) or Moscow Treaty that the next treaty would finally make possible reductions in tactical nuclear weapons?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. Then-Secretaries Powell and Rumsfeld made clear they intended to raise issues related to tactical nuclear weapons with their Russian counterparts. In 2002, the United States and Russia agreed to establish a Consultative Group for Strategic Security (CGSS) to serve as the principal mechanism through which the sides could discuss a broad range of international security issues. One of the priorities that the United States pursued in the CGSS was transparency in tactical nuclear weapons. However, no progress was made on developing an arms control agreement governing tactical nuclear weapons.

As stated in the 2010 NPR, the President has directed a review of post-New START arms control objectives to consider further reductions in nuclear weapons. Specifically, the U.S. goals in post-New START bilateral negotiations with Russia will include reducing non-strategic/tactical nuclear weapons and nondeployed nuclear weapons, as well as deployed strategic nuclear weapons on ICBMs, SLBMs, and nuclear-capable heavy bombers.

President Medvedev has expressed interest in future discussions on measures to further reduce both nations' nuclear arsenals. We intend to raise strategic and tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions.

Of course, any specific U.S.-Russian discussions on U.S. non-strategic/tactical nuclear weapons will take place in the context of continued close consultation with allies and partners.

49. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, what leverage will the United States have in the future to address this disparity when we have only a couple of hundred tactical nuclear weapons in Europe while the Russians have thousands?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. The New START treaty sets the stage for further negotiations with Russia on measures to reduce both our strategic and tactical nuclear weapons, including nondeployed nuclear weapons. President Medvedev has expressed interest in future discussions on measures to reduce both nations' nuclear arsenals. We intend to raise strategic and tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions.

Leverage for future negotiations will come from several directions. The Russians are concerned with the totality of the U.S. nuclear stockpile, particularly the upload capability of our strategic ballistic missiles, as well as U.S. tactical nuclear weapons forward-deployed in NATO countries. Also, Article VI of the NPT stipulates that nuclear weapons states are to work toward achieving nuclear disarmament. The Russians want to be seen favorably as working toward this goal.

50. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, would the administration be willing to put missile defense on the negotiating table to get reductions in Russian tactical nuclear weapons?

Secretary CLINTON. No. While it is certainly desirable to get reductions in Russian tactical nuclear weapons, this administration has consistently informed Russia that the United States will not agree to constrain or limit U.S. BMD capabilities.

Secretary GATES. No.

Admiral MULLEN. No.

51. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, would the administration be willing to use our large hedge of nondeployed nuclear warheads to get reductions in Russian tactical nuclear weapons?

Secretary CLINTON. Presidents Obama and Medvedev have expressed their interest in future discussions on measures to further reduce both nations' nuclear arsenals. We intend to raise the issue of strategic and tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions. It is premature at this stage to discuss what our negotiating strategy might be.

Secretary GATES. The Department of Defense will carry out analyses to explore the adequacy of various U.S. strategic and tactical nuclear capability levels—including both deployed and nondeployed weapons—within the context of similar nuclear force levels on the Russian side in preparation for the next round of nuclear arms reduction negotiations.

Admiral MULLEN. In the NPR, the Obama administration stated its desire to engage in a strategic dialogue with Russia to discuss steps it could take to allay concerns in the West about Russia's non-strategic nuclear arsenal. I would note that this strategic dialogue is unrelated to DOD reasoning for maintaining our stockpile of nondeployed warheads.

The United States maintains nondeployed nuclear warheads in the U.S. stockpile to provide logistics spares, support the aging surveillance program, and hedge against technical or geopolitical surprise. The nondeployed stockpile currently includes more warheads than would otherwise be required for these purposes, if not for the limited capacity of the NNSA complex to conduct LEPs for deployed weapons in a timely manner. Progress in restoring NNSA's production infrastructure will allow the U.S. to reduce its reliance on, and thus the supply of, reserve warheads. It is only within this broader context that the U.S. would consider nondeployed warheads as part of any future negotiating strategy.

52. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, what impact will the disparity in tactical nuclear weapons have on the ability of the United States to extend deterrence, or nuclear security guarantees, to allies that are within the range of Russian tactical nuclear weapons?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. Extended nuclear deterrence will remain strong under the New START treaty, including for those within range of Russian tactical nuclear weapons. A credible U.S. extended nuclear deterrent protecting allies and partners is provided by a combination of means—the strategic forces of the U.S. strategic Triad, non-strategic nuclear weapons forward deployed in Europe, and U.S.-based nuclear weapons that could be deployed forward quickly to meet regional contingencies.

53. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, could the Russians benefit, in terms of the influence they are able to exert over specific regions, due to their superiority in tactical nuclear weapons?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. U.S. extended deterrence and assurance will remain strong under New START. NATO retains a nuclear capability and the United States retains a variety of capabilities to forward-deploy nuclear weapons into other regions if the situation ever demands. The New START limit on deployed nuclear warheads was made with consideration of the U.S. ability to fulfill our deterrence commitments around the world.

54. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, what impact will this tactical nuclear weapon disparity have on the views of our 30 allies currently protected under the United States nuclear umbrella?

Secretary CLINTON. We have discussed our nuclear force reductions with our allies and assured them that U.S. nuclear force reductions will be implemented in ways that maintain the reliability and effectiveness of our extended deterrent for all of our allies and partners.

Secretary GATES and Admiral MULLEN. Traditionally, a credible U.S. "nuclear umbrella" has been provided by a combination of means—the strategic forces of the U.S. Triad, non-strategic nuclear weapons deployed forward in key regions, and U.S.-based nuclear weapons that could be deployed forward quickly to meet regional contingencies. The mix of deterrence means has varied over time and from region to region.

Today, there are separate choices to be made in partnership with allies in Europe and Asia about what posture best serves our shared interests in deterrence and assurance and in moving toward a world of reduced nuclear dangers. The U.S. and

its NATO allies maintain forward deployed tactical nuclear weapons to enhance deterrence. Within the regional context, the United States relies on additional capabilities to support extended deterrence and power projection, including: conventional force capabilities, BMDs, allied capabilities, advanced technologies, and modernization and maintenance of existing forces, to name a few. Finally, the United States retains the capability to rapidly upload additional strategic nuclear weapons if necessary.

During consultations during the development of the 2010 NPR and since the release of the NPR and the signing of New START, Allies have told us they are comfortable with our planned nuclear force posture, which is consistent with the NPR recommendations and the New START treaty. Allied governments have noted that future U.S.-Russian nuclear arms reduction negotiations should seek to reduce Russian tactical nuclear weapons.

Lastly, the United States will sustain safe, secure, and effective nuclear forces to deter any potential adversary so long as nuclear weapons exist. U.S. nuclear force reductions will be implemented in ways that maintain the reliability and effectiveness of our extended deterrent for all of our allies and partners.

NONPROLIFERATION

55. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, Admiral Mullen stated in his written testimony that this treaty demonstrates our national commitment to reducing the worldwide risk of nuclear incident resulting from the continuing proliferation of nuclear weapons. How does this treaty reduce the proliferation of nuclear weapons?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. U.S. leadership in reducing its nuclear arsenal is essential to our efforts to bolster the nonproliferation regime and reduce global nuclear dangers. The New START treaty positions the United States to continue its international leadership role in advancing the goals of the NPT regime. Having concluded this agreement with Russia strengthened the U.S. position during the NPT Review Conference in May 2010, and helped aid our efforts to conclude a consensus final document, which did not occur at the previous Review Conference in 2005. The new treaty set the stage for engaging other nuclear powers in fulfilling the goals of the NPT, and expanding opportunities for enhancing strategic stability.

Enhanced cooperation between the United States and Russia in the nuclear arena will contribute to the positive international environment needed to reinforce programs to secure and safeguard nuclear material stockpiles worldwide, and to strengthen the NPT. More generally, improved U.S.-Russian relations will help in pursuing critical U.S. foreign policy objectives related to U.S. security, including efforts to address the nuclear programs of Iran and North Korea.

56. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, did the Moscow Treaty aid in reducing proliferation when it was ratified?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. Yes. Like other strategic nuclear arms control agreements, the Moscow Treaty demonstrated U.S. leadership in reducing its nuclear arsenal and contributed therefore to efforts to bolster the nonproliferation regime and reduce global nuclear dangers.

57. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, how does the New START stop other countries from continuing to develop or produce nuclear weapons?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. U.S. leadership in reducing its nuclear arsenal is essential to our efforts to bolster the nonproliferation regime and reduce global nuclear dangers. The New START treaty positions the United States to continue its international leadership role in advancing the goals of the NPT regime. Having concluded this agreement with Russia strengthened the U.S. position during the NPT Review Conference in May 2010, and helped aid our efforts to conclude a consensus final document, which did not occur at the previous Review Conference in 2005. The new treaty set the stage for engaging other nuclear powers in fulfilling the goals of the NPT, and expanding opportunities for enhancing strategic stability.

Enhanced cooperation between the United States and Russia in the nuclear arena will contribute to the positive international environment needed to reinforce programs to secure and safeguard nuclear material stockpiles worldwide, and to strengthen the NPT. More generally, improved U.S.-Russian relations will help in

pursuing critical U.S. foreign policy objectives related to U.S. security, including efforts to address the nuclear programs of Iran and North Korea.

58. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, how does the New START safeguard existing nuclear weapons and keep them out of the hands of terrorists?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. New START is just one element of a comprehensive strategy to implement the President's nuclear security agenda. The New START treaty reduces limits on deployed strategic nuclear warheads and delivery vehicles in the U.S. and Russian arsenals. For almost 20 years, the Nunn-Lugar Cooperative Threat Reduction (CTR) Program has worked to help eliminate strategic systems in Russia and other states of the former Soviet Union. Past eliminations have been completed in accordance with applicable START provisions, including the START Conversion or Elimination Protocol. Going forward, CTR will complement New START, while continuing to operate under its own authorities.

Together with Department of Energy nonproliferation programs, CTR has contributed to the upgrading of physical security systems at Russia's nuclear weapons storage sites, as well as provided training facilities for guard forces, equipped an emergency response force, and helped the Ministry of Defense to establish a personnel reliability program. In tandem with the eliminations under New START, these past and continuing efforts will support the objective of keeping nuclear weapons and delivery systems out of the hands of terrorists.

RELATIONS WITH RUSSIA

59. Senator INHOFE. Secretary Clinton, you said during the hearing, "I would underscore the importance of ratifying the New START to have any chance of us beginning to have a serious negotiation over tactical nuclear weapons." As you know, START II never entered into force, but that did not stop the United States and Russia from concluding other treaties, such as the Moscow Treaty or the New START. The Strategic Arms Limitations Talks (SALT) II was not ratified either. Why will we not be able to negotiate tactical nuclear weapons reductions if this treaty does not enter into force when history disproves that argument?

Secretary CLINTON. Our first order of business is to bring the New START treaty into force. If we fail to do so, Russia could question whether we would be able to bring a future treaty into force and therefore might be less inclined to negotiate one in the near term. Regarding the historical examples you cite, it is important to note that there was a 15-year gap between the time SALT II was concluded and START entered into force; and there was a 9-year gap between the time START II was concluded and the Moscow Treaty entered into force. We do not want to wait that long to make progress on tactical nuclear weapons.

60. Senator INHOFE. Secretary Clinton, are U.S.-Russia relations so fragile after more than a year of a reset policy that they would not recover if the Senate or the Duma did not ratify the New START?

Secretary CLINTON. The relationship between the United States and Russia continues to improve, and the conclusion of the New START treaty reflects our growing cooperation on matters of mutual interest, including top priorities like nuclear security and nonproliferation. The treaty, by helping improve bilateral relations, has facilitated cooperation on other top priorities, including Iran, most recently with the passage of UNSC Resolution 1929, which imposes new sanctions on Iran.

Failure to bring the treaty into force would be a setback for the relationship and could make it more difficult to cooperate in areas of mutual interest, as well as to engage productively on issues where we do not see eye to eye with Russia.

Moreover, without the New START treaty's verification regime, including inspections, data exchanges and notifications, the United States and Russia would have to rely solely on National Technical Means to monitor each other's strategic forces. Over time, this could lead to greater uncertainty regarding each other's strategic forces and could cause a decline in confidence, with potentially negative consequences for strategic stability.

MISSILE DEFENSE

61. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, the New START preamble recognizes "the interrelationship between strategic offensive arms and strategic defensive arms, that this interrelationship will become more im-

portant as strategic nuclear arms are reduced and that current strategic defensive arms do not undermine the viability and effectiveness of the strategic offensive arms of the Parties." Article V, Section 3 of the treaty text places restrictions on converting ICBM and SLBM launchers for placement of missile defense interceptors. The unilateral statement issued by the Russian side on missile defense, released the same day as the full agreed-upon the New START text in Prague on April 8, states that the treaty "can operate and be viable only if the United States of America refrains from developing its missile defense capabilities quantitatively or qualitatively." Russian Foreign Minister Sergei Lavrov stated, "We have not yet agreed on this [missile defense] issue and we are trying to clarify how the agreements reached by the two presidents ... correlate with the actions taken unilaterally by Washington," and added that the "Obama administration had not coordinated its missile defense plans with Russia."

When taken together, the New START preamble, Russian unilateral statement, and pronouncements by senior Russian officials suggest the Russians believe there is a linkage between certain U.S. missile defense activities and their adherence to the treaty. While the Obama administration had made it clear that the treaty in no way limits any U.S. missile defense activity, what is more important is what the Russians think. One way to address this concern is by making it clear in the Resolution of Ratification that the United States will not be limited, in any fashion, in its missile defense deployments by the New START. Are you aware of any agreements reached between the two presidents concerning missile defense, whether in the context of the New START or otherwise?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. Apart from the provisions contained in the New START treaty, in the last year the Presidents have issued two documents addressing BMD.

On July 6, 2009, the Presidents of the United States and the Russian Federation issued at a summit in Moscow a Joint Statement on Missile Defense Issues. In that joint statement, the Presidents instructed their experts "to work together to analyze the ballistic missile challenges of the 21st century and to prepare appropriate recommendations, giving priority to the use of political and diplomatic methods." Accordingly, the United States and Russia are conducting a Joint Threat Assessment pursuant to the Joint Statement.

At that same Presidential summit on July 8, 2009, Presidents Obama and Medvedev signed a Joint Understanding on concluding a new legally binding agreement to replace the START treaty. They directed that the new treaty include a number of elements, including a "provision on the interrelationship of strategic offensive and strategic defensive arms," which is reflected in the preamble of the New START treaty.

Additionally, the April 7, 2010, U.S. Unilateral Statement by the United States of America Concerning Missile Defense in response to Russia's unilateral statement makes it clear that the United States intends to continue to improve and deploy the most effective missile defense capabilities possible. The administration has consistently informed Russia that while we seek to establish a framework for U.S.-Russia BMD cooperation, the United States cannot agree to constrain or limit our development or deployment of the most effective missile defenses possible to protect our homeland, deployed forces, and allies and partners.

62. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, are you aware of any push by Russia for a renewed demarcation between theater missile defense and national missile defense?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. Russia has proposed that we jointly discuss how to differentiate between strategic and non-strategic BMDs. However, the administration's view is that the evolution of BMD technologies has made such a distinction problematic, as some regional BMD systems are capable of enhancing the protection of the U.S. homeland and could thereby assume a strategic role. The administration's view has been communicated to the Russian Government.

63. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, would an agreement between the United States and Russia on missile defense have to be approved by the Senate?

Secretary CLINTON. The administration has consistently informed Russia that while we seek to establish a framework for U.S.-Russian BMD cooperation, the United States will not agree to constrain or limit our development or deployment of the most effective missile defenses possible to protect our homeland, deployed forces, and allies and partners. With respect to missile defense cooperation, the precise form of any potential agreement would depend on the specific content of such

an agreement. We would, of course, work closely with the Senate to address any concerns in this important area.

Secretary GATES and Admiral MULLEN. We concur.

64. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, do the United States and Russia have an agreement on what constitutes strategic missile defense?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. No. The administration's view is that the evolution of BMD technologies has made such a distinction problematic, as some regional BMD systems are capable of enhancing the protection of the U.S. homeland and could thereby assume a strategic role. The administration's view has been communicated to the Russian Government.

65. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, will you pledge to the Senate that under no circumstances will the United States agree to any geographic limitation sought by Russia as to where we can deploy our missile defenses?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. The administration has consistently informed Russia that while we seek to establish a framework for U.S.-Russia BMD cooperation, the United States will not agree to constrain or limit our development or deployment of the most effective missile defenses possible to protect our homeland, deployed forces, and allies and partners.

66. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, will you pledge that the United States will accept no limitation pertaining to our ability to deploy national missile defenses?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. This administration has consistently informed Russia that while we seek to establish a framework for U.S.-Russia BMD cooperation, the United States will not agree to constrain or limit current or planned U.S. BMD capabilities quantitatively, qualitatively, operationally, geographically, or in any other way.

67. Senator INHOFE. Secretary Gates, when and where will the United States deploy the early warning radar to support Phase I of the phased adaptive approach?

Secretary GATES. We are still in discussions with potential host nations for the AN/TPY–2 radar at this time. We expect the 2011 deployment goal to be met.

68. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, will you pledge to brief Senators and staff about any agreements related to missile defense that come out of President Obama and President Medvedev's discussions?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. Yes. The administration would brief relevant Senators and staff regarding any U.S.-Russian agreements on missile defense.

69. Senator INHOFE. Secretary Clinton, will you share with us the memorandum of conversations and cables that were produced during Under Secretary Tauscher and Deputy Foreign Minister Ryabkov's discussions on missile defense for the New START?

Secretary CLINTON. The treaty text, the detailed article-by-article analysis, and testimony provided at hearings on the treaty all provide a comprehensive picture of U.S. obligations under the treaty, including those obligations that relate to missile defense. However, should you have any additional questions we are committed to providing answers in detailed briefings, in a classified session, if needed.

70. Senator INHOFE. Secretary Clinton, Secretary Gates, and Admiral Mullen, will you share with us any draft proposals for U.S.-Russia missile defense cooperation provided by U.S. Government personnel to officials of the Russian Federation?

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. The administration will keep interested Members of Congress and staff informed about U.S.-Russian discussions and proposals regarding BMD cooperation.

71.Senator INHOFE. Secretary Clinton, do you agree with Secretary Gates that there is not a meeting of the minds between the United States and Russia on missile defense?

Secretary CLINTON. Yes. I agree with Secretary Gates that there is not a meeting of the minds between the United States and Russia on the general issue of missile defense. Secretary Gates and I agree that there is a meeting of the minds between the United States and Russia regarding all the provisions of the New START treaty.

NATIONAL NUCLEAR SECURITY ADMINISTRATION APPROPRIATIONS

72. Senator INHOFE. Secretary Gates and Secretary Chu, given the criticality of funding to modernize the weapons complex, is the President committed to ensuring that NNSA receives the full $624 million increase as proposed in his fiscal year 2011 budget?

Secretary GATES. Yes.

Secretary CHU. Yes, and we are working closely with Congress to secure appropriations at the requested level.

73. Senator INHOFE. Secretary Gates and Secretary Chu, will you recommend that the President veto any appropriation that does not meet his full request for the nuclear weapons complex?

Secretary GATES. I concur with Secretary Chu. I strongly support the full funding for the nuclear weapons complex including in the President's budget request, and would advise the President accordingly.

Secretary CHU. I would not support an appropriation that did not allow the United States to ensure the safety, security, and effectiveness of the U.S. nuclear weapons deterrent, and if asked by the President for my recommendation on this matter, I would advise him accordingly.

74. Senator INHOFE. Secretary Gates, you said in the hearing, "I've been up here for the last four springs trying to get money for this, and this is the first time I think I've got a fair shot of actually getting money for our nuclear arsenal." Why do you think Congress, or at least one House subcommittee, has been unwilling to provide these needed funds?

Secretary GATES. The House Energy and Water Development Appropriations subcommittee has stated in reports over the past several years that the administration had provided "no clear policy statements that articulate the role of nuclear weapons in a post-Cold War and post-September 11 world. [and] no convincing rationale for maintaining the large number of existing Cold War nuclear weapons." While I believe the rationale for nuclear weapons complex investments that was provided during my tenure to be more than adequate, I am hopeful that the combination of the NPR, the section 1251 and section 3113 reports, including the 10-year spending plans and 20-year stockpile roadmap—and extensive statements by senior leadership of this administration on these issues and New START—will help us move forward with these critical investments.

75. Senator INHOFE. Secretary Gates and Secretary Chu, should Congress consider changing jurisdiction for nuclear weapons appropriations?

Secretary GATES. No.

Secretary CHU. No.

76. Senator INHOFE. Secretary Gates and Secretary Chu, Secretary Gates said in the hearing, "this is a long-term need on the part of the Nation . . . and there's been no progress toward providing any additional funding for our nuclear weapons modernization programs since that time." How long is the process of modernization expected to take?

Secretary GATES. I agree with Secretary Chu that this multi-dimensional modernization of the U.S. nuclear weapons stockpile, and the nuclear weapons complex that supports it, will extend over many years.

Secretary CHU. Modernization of the NNSA Nuclear Security Enterprise will be a multi-year process, and different elements will mature at different times. Maintaining the stockpile is an enduring NNSA commitment, and we will fully support DOD requirements by extending the life of the stockpile as long as required. The current LEP planning schedule contained in the Stockpile Stewardship and Management Plan (SSMP) extends to 2030. Regarding infrastructure projects, both the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR–NF) and the Uranium Processing Facility (UPF) are scheduled to complete construction in 2020 and begin full operations in 2022. Regarding other aspects of the process, such as rebuilding the intellectual infrastructure and ensuring retention of critical skills, the requirements in the NPR, and the details in the SSMP, provide challenging work of national importance that will allow NNSA to attract and retain the skilled workforce necessary to maintain a safe, secure, and effective stockpile as long as required. NNSA will continue to report modernization progress to Congress in future submissions of the SSMP.

77. Senator INHOFE. Secretary Gates and Secretary Chu, should Congress and the administration take a fresh look each year as to how the nuclear enterprise modernization program is progressing and to make sure there is the appropriate appropriation of resources, especially as decisions are made about the warhead LEP and delivery system replacement?

Secretary GATES. Yes, I concur with Secretary Chu.

Secretary CHU. Yes. Retaining the core nuclear weapons capabilities, while transitioning to the more compact and agile infrastructure needed to ensure a safe, secure, and effective deterrent, will require sustained attention and investment. We would welcome Congress's involvement and support.

DEPARTMENT OF ENERGY INVESTMENT

78. Senator INHOFE. Secretary Chu, the fiscal year 2011 budget plan for weapons activities shows a very flat profile for the next 3 years with approximately $7 billion each year. Apart from the $5 billion set aside for NNSA by DOD, there appears to be no attempt to grow the budget and improve the infrastructure in the near term. How does DOE plan to match its commitments with its proposed budgets?

Secretary CHU. The fiscal year 2011–2015 Future Years Nuclear Security Program (FYNSP) was shaped by the NNSA's assessment of the ability of the Nuclear Security Enterprise to efficiently "ramp-up" within the constraints of time, capacity and capability to spend increased funds to redress mission shortfalls. It balances requirements with executability. Compared to the fiscal year 2010 appropriation, it includes a $624 million increase for fiscal year 2011, a $648 million increase for fiscal year 2012, and a $698 million increase for fiscal year 2013. With the approval of Congress, this increased funding over the next 3 years will be used for essential planning, design, and development activities to support both life-extension of the stockpile, including the W76, B61 and W78 LEPs, and modernization of the NNSA infrastructure, including design activities for the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR–NF) and Uranium Processing Facility (UPF) to establish validated baselines for future construction. Upon completion of planning, design and development work, in the 2012–2013 timeframe, as we achieve more fidelity in the budget, there is an expectation for some of these numbers to change. Additional funding will be required to ramp up production and construction activities, which is reflected in the fiscal year 2014 and fiscal year 2015 portion of the FYNSP, as well as the out-year funding requirements outlined in the report to Congress made pursuant to section 1251 of the National Defense Authorization Act for Fiscal Year 2010, entitled: "The New START Treaty Framework and Nuclear Force Structure Plans," and in the recently completed NNSA Stockpile Stewardship and Management Plan. Validated baselines for major projects may drive a different out-year view of requirements. The funding requirements identified to date, however, represent the most complete view of needs until these projects reach validation.

79. Senator INHOFE. Secretary Chu, will a flat weapons activities budget be able to reverse declines or will it be absorbed by the problems at hand?

Secretary CHU. The fiscal year 2011–2015 FYNSP was shaped by the NNSA's assessment of the ability of the Nuclear Security Enterprise to efficiently "ramp-up" within the constraints of time, capacity and capability to spend increased funds to redress mission shortfalls. It balances requirements with executability. Compared to the fiscal year 2010 appropriation, it includes a $624 million increase for fiscal year 2011, a $648 million increase for fiscal year 2012, and a $698 million increase for fiscal year 2013. With the approval of Congress, this increased funding over the next 3 years will be used for essential planning, design, and development activities to support both life-extension of the stockpile, including the W76, B61 and W78 LEPs, and modernization of the NNSA infrastructure, including design activities for the Chemistry and Metallurgy Research Replacement Nuclear Facility (CMRR–NF) and Uranium Processing Facility (UPF) to establish validated baselines for future construction. Upon completion of planning, design and development work, in the 2012–2013 timeframe, as we achieve more fidelity in the budget, there is an expectation for some of these numbers to change. Additional funding will be required to ramp up production and construction activities, which is reflected in the fiscal year 2014 and fiscal year 2015 portion of the Future Years Nuclear Security Program, as well as the out-year funding requirements outlined in recent reports to Congress. Validated baselines for major projects may drive a different out-year view of requirements. The funding requirements identified to date, however, represent the most complete view of needs until these projects reach validation. The administration's

submittal demonstrates a long-term, executable commitment to a safe, secure, and effective nuclear deterrent.

80. Senator INHOFE. Secretary Chu, have the nuclear weapons laboratories or other sites communicated to DOE any unfunded requirements from the fiscal year 2011 budget request?

Secretary CHU. The NNSA receives many field requests on an annual basis that are evaluated and prioritized within a constrained budget. The priority list is developed using an evaluation process that considers mission requirements, regulatory commitments, and risk. Management makes a resource allocation determination based on a balancing of these priorities.

81. Senator INHOFE. Secretary Chu, are you confident there is sufficient capacity in the complex to undertake the LEPs for the W76 and the B61 weapon systems, to start the W78 weapon system, and to continue dismantlement?

Secretary CHU. Yes. The NNSA Stockpile Stewardship and Management Plan (SSMP) accounts for conducting multiple, phased LEPs at the same time. This includes completing by 2017 the ongoing LEP for the W76 warhead, completing a full scope LEP study for the B61 bomb and beginning production in 2017, and completing, with the Nuclear Weapons Council, a study of LEP options for maintaining the W78 ICBM warhead. While carrying out this work, NNSA will continue its dismantlement activities at the Pantex Plant and Y–12 National Security Complex.

82. Senator INHOFE. Secretary Chu, if the United States decided to add an LEP to the W80 weapon system, what would have to change in DOE funding to add that requirement?

Secretary CHU. All warheads in the enduring nuclear stockpile will require some level of technical attention in the next three decades to ensure their continued safety, security, and effectiveness. The LEP process determines the specific extent of this activity appropriate to each weapon system. We have not at this time scheduled or embarked upon a life extension activity for the W80 warhead, so it is difficult to assess the scope of such an endeavor. We are confident that full implementation of the SSMP through fiscal year 2030 will maintain our country's nuclear weapons safely, securely, and effectively without a need to resume underground nuclear tests.

MODERNIZATION

83. Senator INHOFE. Secretary Gates and Secretary Chu, our nuclear weapons average age is over 30 years and most are 15 or more years beyond design life. Secretary Gates warned last October, "there is absolutely no way we can maintain a credible deterrent and reduce the number of weapons in our stockpile without either resorting to testing our stockpile or pursuing a modernization program." The Perry-Schlesinger Commission was unanimously alarmed by serious disrepair and neglect of nuclear weapons stockpile and complex. Press reports indicate the administration will invest $100 billion over the next decade in nuclear delivery systems. About $30 billion of this total will go toward development and acquisition of a new SSBN, leaving about $70 billion. According to estimates by U.S. Strategic Command (STRATCOM), the cost of maintaining our current dedicated nuclear forces is approximately $5.6 billion per year or $56 billion over the decade. This leaves roughly $14 billion of the $100 billion the administration intends to invest, which will be even less if you factor in inflation. In light of these figures, and the fact that you have yet to make additional modernization decisions, do you believe $100 billion over 10 years is truly a sufficient investment in our delivery systems over the next decade?

Secretary GATES. The Section 1251 report, "New START Framework and Nuclear Force Structure Plans," to Congress, which is the basis for the estimate of $100 billion costs over 10 years for delivery systems, included costs for which there are currently programs of record. As stated in the one page, unclassified summary of the 1251 report, the administration intends to invest well over $100 billion in modernizing strategic delivery systems. The Department of Defense is currently conducting an Analysis of Alternatives for a possible follow-on air launched cruise missile, and is assessing future heavy bomber requirements in a study of long-range strike that will be completed in fall 2010. In addition, the Air Force is initiating a study of future ICBM concepts and requirements. As these studies are completed, and subsequent decisions taken, the estimate for costs of strategic delivery systems in the next decade will likely change.

Secretary CHU. With regard to investments to revitalize the nuclear weapons complex, the President's fiscal year 2011 budget proposal initiates a multi-year investment plan with substantial budget increases to extend the life of the stockpile, redress shortfalls for stockpile surveillance activities and stockpile certification through investments in the science, technology, and engineering (ST&E) base, and maintain and modernize the supporting infrastructure. This investment plan begins with a significant increase of $624 million for fiscal year 2011 as compared with the fiscal year 2010 appropriation. As outlined in the Section 1251 report and in the recently completed NNSA Stockpile Stewardship and Management Plan, the United States plans to invest $80 billion over the next 10 years—a net increase of $10 billion—to sustain and modernize the NNSA Nuclear Security Enterprise. However, we are still in the process of developing a baseline budget for four significant budget drivers: the Uranium Processing Facility (UPF), the Chemistry and Metallurgy Replacement Facility (CMRR), and the B61 and W78 LEPs. Thus, there is an expectation for some of these numbers to change as we achieve more fidelity in the budget.

84. Senator INHOFE. Secretary Gates and Secretary Chu, what details can you provide that show the administration's intent to modernize our nuclear enterprise with its laboratories, delivery platforms, and weapons, as well as maintain its intellectual expertise?

Secretary GATES and Secretary CHU. The administration's commitment to stockpile stewardship, modernization of the Nuclear Security Enterprise, and investment in the human capital base is made clear through the programs and plans contained in the NPR, the report to Congress made pursuant to section 1251 of the National Defense Authorization Act for Fiscal Year 2010, entitled: "The New START Treaty Framework and Nuclear Force Structure Plans," and in the recently completed NNSA Stockpile Stewardship and Management Plan. As outlined in those reports, the United States plans to invest $80 billion over the next 10 years—a net increase of $10 billion—to sustain and modernize the NNSA Nuclear Security Enterprise, and over $100 billion in nuclear delivery systems to sustain existing capabilities and modernize strategic systems.

VERIFICATION PROCEDURES

85. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, given that the verification measures for this treaty have been simplified, does this make it harder for our intelligence community to monitor Russian nuclear forces?

Secretary CLINTON, Secretary GATES, and Secretary CHU. The verification measures for the New START treaty will contribute to our understanding of Russian nuclear forces. Please see the classified National Intelligence Estimate on Monitoring the New START treaty, which was provided to the Senate on June 30, 2010.

86. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, do you expect the intelligence services in your departments or the intelligence community as a whole will require more resources to ensure we are adequately monitoring Russian nuclear force developments if the New START is ratified?

Secretary CLINTON, Secretary GATES, and Secretary CHU. Please see the classified National Intelligence Estimate on Monitoring the New START treaty which was provided to the Senate on June 30, 2010.

87. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, are you confident the intelligence community and your respective departments will have sufficient resources and capability to monitor Russian nuclear forces over the duration of this treaty, if ratified?

Secretary CLINTON, Secretary GATES, and Secretary CHU. Please see the classified National Intelligence Estimate on Monitoring the New START treaty which was provided to the Senate on June 30, 2010.

88. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, will you need greater resources to monitor Russian nuclear forces because of the simplification of verification and confidence building tools in the New START as compared to START?

Secretary CLINTON, Secretary GATES, and Secretary CHU. Please see the classified National Intelligence Estimate on Monitoring the New START treaty which was provided to the Senate on June 30, 2010.

89. Senator INHOFE. Secretary Clinton, Secretary Gates, Secretary Chu, and Admiral Mullen, what statistical methodology was used to help guide U.S. negotiators when they settled with the Russians on the number of inspections that would be undertaken each year?

Secretary CLINTON, Secretary GATES, Secretary CHU, and Admiral MULLEN. The U.S. Government interagency assessed the number of Type One and Type Two inspections needed annually to meet U.S. inspection objectives as the nature of these inspection types emerged during the New START negotiations. These assessments ultimately concluded that an annual quota of 18 such inspections would be adequate to meet U.S. inspection needs.

The New START treaty provides for an annual quota of up to 18 short notice, on-site inspections to aid in verifying Russian compliance with its treaty obligations. These inspections will provide U.S. inspectors with periodic access to key strategic weapons facilities to verify the accuracy of Russian data declarations and deter cheating. Although the new treaty provides for fewer inspections than the annual quota of 28 permitted under the original START treaty, the number of inspectable facilities in Russia under the New START treaty (35) is also significantly lower than the declared number of such facilities in Russia, Belarus, Kazakhstan, and Ukraine—the former Soviet Union—when the START treaty entered into force (70). Furthermore, some verification activities covered by two separate inspection types under the START treaty have been combined into a single inspection under the New START treaty.

The New START treaty annual inspection quota includes up to 10 Type One inspections of deployed and nondeployed strategic offensive arms, which will be conducted at operating bases for ICBMs, ballistic missile submarines (SSBNs), and nuclear-capable heavy bombers. The quota also includes up to 8 Type Two inspections focused on nondeployed strategic systems, conversion or elimination of strategic systems, and formerly declared facilities. Type Two inspections will be conducted at facilities such as storage sites, test ranges, and conversion or elimination facilities, as well as formerly declared facilities.

90. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, are the 18 inspections per year sufficient, with high confidence, to detect cheating?

Secretary CLINTON, Secretary GATES, and Secretary CHU, Please see the classified National Intelligence Estimate on Monitoring the New START treaty which was provided to the Senate on June 30, 2010.

91. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, what is our confidence that we will know precisely how many missiles, including multiple independently targetable reentry vehicle (MIRV) road-mobile missiles, Russia will be building under the New START?

Secretary CLINTON, Secretary GATES, and Secretary CHU, Please see the classified National Intelligence Estimate on Monitoring the New START treaty which was provided to the Senate on June 30, 2010.

92. Senator INHOFE. Secretary Clinton, if the Russians deploy rail-mobile, air-launched, or ship-launched ballistic missiles during the life of this treaty, will they count to the limitations of 700 or 800 strategic nuclear delivery vehicles?

Secretary CLINTON. Rail-mobile ICBMs would be subject to the treaty and would count against the central limit of 700 for deployed ICBMs, deployed SLBMs and deployed heavy bombers. Rail-mobile launchers would count against the central limit of 800 deployed and nondeployed ICBM launchers, SLBM launchers and heavy bombers.

Existing types of ICBMs or SLBMs that were air-launched or launched from a surface ship would also count against the central limit. There are no definitions or provisions in the treaty pertaining specifically to new types of air-launched ballistic missiles or to ship-launched ballistic missiles other than SLBMs. Whether such ballistic missiles, if developed, would be subject to the provisions of the New START treaty would depend upon whether such missiles are considered to be a new kind of strategic offensive arm. The treaty provides that the Bilateral Consultative Commission shall resolve questions related to the applicability of provisions of the treaty to a new kind of strategic offensive arm.

93. Senator INHOFE. Secretary Clinton, will the United States be able to inspect any Russian ballistic missile using the inspections provided by the treaty?

Secretary CLINTON. The treaty establishes that both deployed and nondeployed Russian ICBMs and SLBMs are subject to inspection. The right to conduct inspections to confirm the accuracy of data on deployed and nondeployed strategic offen-

sive arms is contained in Article XI of the treaty. Inspection procedures for all existing types of strategic ballistic missiles covered by this treaty are contained in Part Five of the Protocol. The specific procedures for how to conduct Type One and Type Two inspections of such ballistic missiles are set forth in the Annex on Inspection Activities.

94. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, did our understanding of Russia's nuclear forces increase or diminish under START?

Secretary CLINTON. Without question, our understanding of Russia's nuclear forces increased very significantly under the START treaty. The extensive exchange of data and inspections conducted under START provided significant insights into Russian strategic nuclear forces and operational practices. START's comprehensive verification regime provided the foundation for confidence, transparency, and predictability.

Building on START's legacy, the New START treaty will provide significant transparency and insights regarding each side's strategic forces through its comprehensive verification regime.

Secretary GATES. I concur.

Secretary CHU. I also concur.

95. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, will our understanding of Russia's nuclear forces diminish over the term of the New START?

Secretary CLINTON, Secretary GATES, and Secretary CHU. The verification measures for the New START treaty will contribute to our understanding of Russian nuclear forces. Please see the classified National Intelligence Estimate on Monitoring the New START treaty, which was provided to the Senate on June 30, 2010.

96. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, is it true that at lower levels of weapons, what might otherwise be minor cheating becomes more significant?

Secretary CLINTON. In general, as the number of strategic forces diminishes, the military significance of cheating could be more significant. The United States would view any deliberate effort by Russia to exceed the treaty's limits or circumvent its verification regime with great concern, especially if the cheating had military significance. For that reason, it is important under any treaty that militarily significant cheating can be detected in time to respond appropriately. Should there be any signs of Russian cheating or preparations to break out from the New START treaty, the Executive branch would immediately raise this matter through diplomatic channels, and if not resolved, raise it immediately to higher levels. We would also keep the Senate informed.

Secretary GATES. I concur.

Secretary CHU. I concur.

97. Senator INHOFE. Secretary Clinton, Secretary Gates, and Secretary Chu, under this treaty, and its limits on warheads and delivery systems, what specifically will be considered militarily significant cheating under the new treaty?

Secretary CLINTON. I concur.

Secretary GATES. In response to questions from the Senate during the ratification deliberations for the START treaty in 1992, the Bush administration defined a "militarily significant violation" as "one which endangers the security of the United States or its allies." This remains an appropriate standard. In particular, the primary factor in determining whether cheating has military significance is its impact on strategic stability, namely whether cheating would allow the Russian Federation to eliminate the United States' ability to execute a devastating second strike against Russia.

Admiral Mullen, the Joint Chiefs, and I assess that Russia will not be able to achieve militarily significant cheating or breakout under New START, due to both the New START verification regime and the inherent survivability and flexibility of the planned U.S. strategic force structure.

Secretary CHU. I also concur.

SECTION 1251 REPORT

98. Senator INHOFE. Secretary Gates, the anticipated funding directed to nuclear weapons in the 1251 Report accompanying the New START is $80 billion for weap-

ons and $100 billion for delivery vehicles. How much of the $80 billion over 10 years will come from DOD?

Secretary GATES. The DOD has transferred $4.6 billion in top line budget authority to NNSA for Weapons Activities/Nuclear Security Enterprise, and an additional $1.1 billion for Naval Reactors. These transfers of budget authority from DOD to NNSA are for fiscal year 2011 to fiscal year 2015. There are no plans for additional transfers from DOD to NNSA beyond fiscal year 2015.

99. Senator INHOFE. Secretary Gates, what specific programs are anticipated to be part of delivery vehicle modernization efforts and in what year will these programs commence?

Secretary GATES. The Navy has initiated research and development for the next generation ballistic missile submarine. Funding began for the *Ohio*-class Replacement SSBN in fiscal year 2010 with $495 million for research and development to support the 2019 lead ship procurement. Continued Research, Development, Test, and Evaluation (RDT&E) investment is also included in the President's fiscal year 2011 budget. The Navy's annual long-range plan for construction of naval vessels for fiscal year 2011 incorporates procurement of the *Ohio*-class Replacement into the overall Navy shipbuilding strategy. Plans call for the design of the *Ohio*-class Replacement to begin in fiscal year 2015.

The Air Force plans to sustain the Minuteman III through 2030 as directed by section 139 of the John Warner National Defense Authorization Act for Fiscal Year 2007, and is initiating studies of possible ICBM follow-on systems over the next few years. Similarly, the Air Force will retain the B–52 for nuclear mission requirements through 2035 and beyond and the B–2A for such missions over the coming decades. The Air Force is currently conducting an Analysis of Alternatives for a possible follow-on air-launched cruise missile. The Department of Defense is assessing future heavy bomber requirements in the Long-Range Strike Study that will be completed in the fall of 2010. As these studies are completed and subsequent decisions taken, the estimates for costs of strategic delivery systems over the next decade will likely change.

RELIABLE REPLACEMENT WARHEAD

100. Senator INHOFE. Secretary Clinton, when you were a member of the Senate, this committee and several other committees supported the Reliable Replacement Warhead (RRW) program. Do you still support the RRW, which you consistently supported when you served in the Senate? If you no longer support RRW, please explain why.

Secretary CLINTON. This administration has made clear that the United States will maintain a safe, secure, and effective nuclear arsenal, and the President's fiscal year 2011 budget request for the NNSA, which contains approximately a 10 percent increase in funding for weapons activities with better than 60 percent of this increase focused on directed stockpile work, is indicative of this commitment. After months of extensive analysis, the NPR, which was led by DOD and included the Departments of Energy and State, concluded that we can maintain the safety and reliability of our nuclear arsenal through LEPs. RRW was a program to replace existing nuclear warheads with designs that enhance safety, security, and reliability, beginning with sea-based and air-carried systems. In contrast to that approach, the NPR recommended a nuclear warhead LEP process under which our experts will study options for ensuring the safety, security, and reliability of nuclear warheads on a case-by-case basis, consistent with the congressionally-mandated Stockpile Management Program. The full range of LEP approaches will be considered: refurbishment of existing warheads, reuse of nuclear components from different warheads, and replacement of nuclear components. In any decision to proceed to engineering development for warhead LEPs, the United States will give strong preference to options for refurbishment or reuse. Replacement of nuclear components would be undertaken only if critical Stockpile Management Program goals regarding safety, security, or effectiveness could not otherwise be met and if specifically authorized by the President and approved by Congress. I wholeheartedly support the administration's approach to nuclear warhead life extension.

MINUTEMAN III

101. Senator INHOFE. Secretary Gates and Admiral Mullen, the administration has requested approximately $330 million in fiscal year 2011 to continue modifications to the Minuteman III and conduct technology development for a possible fol-

low-on system. What are the key considerations to take into account with the Minuteman III and any follow-on system when contemplating lower U.S. nuclear forces?

Secretary GATES and Admiral MULLEN. The NPR concluded that the United States should retain a nuclear Triad under the New START treaty. It examined possible "dyads" and determined that there was substantial value in retaining a diverse Triad force structure to hedge against any technical problem or operational vulnerability in one leg. The NPR also concluded that the United States should "de-MIRV" all Minuteman III ICBMs to a single warhead in order to enhance stability.

We will continue the Minuteman III LEP with the aim of keeping the missile in service to 2030, as required by statute. We will also begin an initial study for a follow-on ICBM in fiscal years 2011 and 2012. This study will consider a range of possible deployment options, with the objective of defining a cost-effective approach that supports stable deterrence.

102. Senator INHOFE. Secretary Gates and Admiral Mullen, are you concerned that, at lower nuclear force levels, the military will not be able to carry out its deterrence missions?

Secretary GATES and Admiral MULLEN. We are confident that the U.S. military will be able to carry out its deterrence missions under the New START treaty, with support from Congress for planned investments in nuclear delivery systems and the nuclear weapons complex.

103. Senator INHOFE. Secretary Gates and Admiral Mullen, has analysis been performed to support another round of reductions after the one required by the New START? If so, please share the analysis.

Secretary GATES and Admiral MULLEN. As stated in the NPR, the President has directed a review of post-New START arms control objectives to consider further reductions in nuclear weapons. That review will begin once New START enters into force. As indicated in the NPR, the administration has set some specific goals in post-New START bilateral negotiations with Russia, including reductions in nonstrategic/tactical nuclear weapons and nondeployed nuclear weapons as well as deployed strategic nuclear weapons. Several factors will influence the magnitude and pace of such reductions. First, any future nuclear reductions must continue to strengthen deterrence of potential regional adversaries, strategic stability vis-a-vis Russia and China, and assurance of our allies and partners. Second, the Stockpile Stewardship Program and the nuclear infrastructure investments requested by the administration are essential to facilitating reductions while sustaining deterrence under New START and beyond. Third, Russia's nuclear forces will remain a significant factor in determining how much and how fast we are prepared to reduce U.S. forces.

104. Senator INHOFE. Secretary Gates and Admiral Mullen, what level of disarmament in each leg of the nuclear triad did DOD find unacceptable during the New START negotiations?

Secretary GATES and Admiral MULLEN. The NPR considered a wide range of possible options for the U.S. strategic nuclear posture, and concluded that the United States should retain a Triad of SLBMs, ICBMs, and nuclear-capable heavy bombers under the New START treaty. Reductions that failed to maintain the viability of each leg of the Triad, including the ability to hedge against both technical and geopolitical risk, and sustain technical expertise and operational excellence, would have been considered unacceptable.

105. Senator INHOFE. Secretary Gates and Admiral Mullen, at what level of reduction would you begin to get concerned about the viability of the ICBM force?

Secretary GATES and Admiral MULLEN. We are confident that the New START treaty will allow the United States to sustain a viable and effective ICBM force. We would be concerned about the viability of the U.S. ICBM force if it were too small to support effective hedging against technical and political risk as part of a Triad, or if it were so small that it was difficult to retain technical expertise and operational excellence.

106. Senator INHOFE. Secretary Gates and Admiral Mullen, when will we know whether the Minuteman III can be extended to the 2030 timeframe?

Secretary GATES and Admiral MULLEN. The Air Force plans to sustain the Minuteman III through 2030 in accordance with Section 139 of the John Warner National Defense Authorization Act for Fiscal Year 2007. The U.S. Air Force is fully committed to achieving that objective and has budgeted over $1.3 billion in invest-

ments through the FYDP (fiscal year 2010–fiscal year 2015) to sustain the Minuteman III weapon system through 2030.

107. Senator INHOFE. Secretary Gates and Admiral Mullen, when do you expect to start examining options for a follow-on ICBM after the Minuteman III?

Secretary GATES and Admiral MULLEN. Although a decision on any follow-on ICBM is not needed for several years, studies to inform that decision are needed now. Accordingly, the Department of Defense will begin an initial study of alternatives in fiscal years 2011 and 2012. This study will consider a range of possible deployment options, with the objective of defining a cost-effective approach that supports continued reductions in U.S. nuclear weapons while promoting stable deterrence.

108. Senator INHOFE. Secretary Gates and Admiral Mullen, how long does it take to design and develop a new ICBM, based on prior experience?

Secretary GATES and Admiral MULLEN. Development time for a new ICBM is dependent on the scope and complexity of the system, technology readiness levels, and the state of the industrial base infrastructure required to support a new developmental program. Development of the Minuteman began in 1958 with the first version, the Minuteman I, being placed on alert in 1962. Subsequent versions, the Minuteman II and Minuteman III, took 4 years and 7 years, respectively, to design, develop, and deploy, leveraging the knowledge and experience gained from the missile's initial design and development. In contrast, the larger Peacekeeper ICBM took over 14 years to design and develop prior to initial deployment.

109. Senator INHOFE. Secretary Gates and Admiral Mullen, will we maintain the option of placing multiple warheads on our Minuteman missiles?

Secretary GATES and Admiral MULLEN. Yes. Although the United States will "de-MIRV" the Minuteman III ICBM force to a single warhead to enhance the stability of the nuclear balance as stated in the NPR report, the United States will retain an ability to "upload" nondeployed nuclear warheads on existing delivery vehicles as a hedge against technical or geopolitical surprise.

PAST RUSSIAN COMPLIANCE

110. Senator INHOFE. Secretary Clinton, Congress has not received the verification and compliance reports for START from the Department of State (DOS) Verification, Compliance, and Implementation Bureau since 2005. How many Russian compliance issues were unresolved when START expired?

Secretary CLINTON. The 2010 Report on Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments, including information on Russia's compliance with START through the expiration of the treaty, was submitted to Congress on July 1, 2010. This administration was committed to ensuring that Congress received a comprehensive report.

Issues related to Russia's compliance with START verification and inspection procedures are addressed in the classified version of the 2010 Compliance Report.

111. Senator INHOFE. Secretary Clinton, please describe in detail, in classified form if necessary, all outstanding Russian compliance issues with START.

Secretary CLINTON. The 2010 Compliance Report was submitted to Congress on July 1, 2010. The details of the issues related to Russia's compliance with START verification and inspection procedures are addressed in the classified version of the 2010 Compliance Report.

BRIEFING PAST OFFICIALS

112. Senator INHOFE. Secretary Clinton, you said at this hearing that the administration has been briefing "a series of former diplomats and Defense officials and Energy officials, including Dr. Kissinger." Please share the briefings you have been providing them.

Secretary CLINTON. The administration has provided briefings on the New START treaty to several witnesses who were called to testify before the Senate Foreign Relations Committee. Those briefings drew from the various fact sheets that are readily available to the public on the DOS's web site (http://www.state.gov/t/vci/trty/126118.htm).

RUSSIA AND IRAN

113. Senator INHOFE. Secretary Clinton, is Russia's sale of the S–300 missile system to Iran prohibited by the new United Nations Security Council Resolution 1929 on Iran?

Secretary CLINTON. Russia has confirmed that it will comply with the conventional arms transfer provisions of UNSCR 1929 and therefore will not deliver the S–300 air defense missile system to Iran. We appreciate the restraint that Russia has implemented over the course of several years in not transferring the S–300 to Iran. We hope that Russia's restraint will serve to encourage other potential arms suppliers to adopt a rigorous approach to implementing 1929's provisions on conventional arms transfers.

114. Senator INHOFE. Secretary Clinton, if Russia has agreed to freeze the completion of the S–300 missile system sale, has Russia communicated to the United States for how long that freeze will last?

Secretary CLINTON. See response to question #113.

115. Senator INHOFE. Secretary Clinton, did Russia ask for the 123 Agreement between Russia and the United States to be resubmitted to Congress in exchange for its support for Resolution 1929?

Secretary CLINTON. No. The decision to move forward with the 123 Agreement was made on its own merits, in order to advance nonproliferation objectives.

116. Senator INHOFE. Secretary Clinton, did Russia ask for the United States to pledge not to carry out any unilateral sanctions on Russian entities in the future in exchange for its support on Resolution 1929?

Secretary CLINTON. There has been no quid pro quo with the Russian Government on the issue of sanctions.

We believe that UNSC resolution 1929 will have a significant impact on Iran's ability to develop weapons of mass destruction and acquire conventional weapons. The UNSC resolution puts international legal constraints on potential exports of concern by entities in all U.N. member states, including Russia.

Nonproliferation is a high priority for the United States, and the Russian Government is a key partner in this effort. We will continue to work cooperatively with the Russian Government to prevent entities from contributing to weapons of mass destruction, missile programs, or conventional weapons programs of concern. At the same time, we will continue to implement U.S. nonproliferation penalties when appropriate. We will continue to monitor the activities of Russian entities and will make determinations consistent with existing legislation and other legal authorities.

117. Senator INHOFE. Secretary Clinton, does DOS have any evidence that Russian entities are selling refined petroleum products to Iran or otherwise doing business in Iran? If it does, please provide a detailed list.

Secretary CLINTON. Iran is not a major trading partner for Russia, according to official Russian statistics. Trade with Iran has never reached even one percent of total Russian trade.

Russia has enjoyed a significant surplus in its trade with Iran since 2001 (and before). Russian exports to Iran consist principally of consumer goods, oil and gas equipment, and arms. Russian imports from Iran are dominated by agricultural goods. Both countries produce oil and gas, so trade in those commodities has represented only a very small share of total trade, outside of the years 2003 and 2004 when Russian exports surged briefly.

In the first quarter of 2010, trade between Russia and Iran continued the downward trend evident during 2009. Total trade of $724.1 million during that quarter was 6.38 percent less than the $773.5 million recorded during the first quarter of 2009.

Year	Russian Exports to Iran (U.S.$ millions)	Russian Imports from Iran (U.S.$ millions)	Total Trade (U.S.$ millions)	Change from Previous Year (percent)	Trade with Iran as percent of All Russian Trade	Iran's Rank among Russia's Trading Partners
2009	2,785.1	202.8	2,987.9	~15.92	0.77	27
2008	3,177.0	376.8	3,553.8	9.69	0.57	30
2007	2,894.7	345.1	3,239.8	83.42	0.69	27
2006	1,535.4	230.9	1,766.3	~10.34	0.50	35
2005	1,870.0	100.0	1,970.0	3.24	0.71	29
2004	1,844.3	63.9	1,908.2	49.17	0.93	26
2003	1,231.0	48.2	1,279.2	73.65	0.88	29

Year	Russian Exports to Iran (U.S.$ millions)	Russian Imports from Iran (U.S.$ millions)	Total Trade (U.S.$ millions)	Change from Previous Year (percent)	Trade with Iran as percent of All Russian Trade	Iran's Rank among Russia's Trading Partners
2002	702.3	34.3	736.6	~13.35	0.63	32
2001	823.3	26.8	850.1	43.86	0.81	31

Source of Data: Global Trade Atlas®

QUESTIONS SUBMITTED BY SENATOR SAXBY CHAMBLISS

INTERCONTINENTAL BALLISTIC MISSILE EXEMPTIONS

118. Senator CHAMBLISS. Secretary Clinton and Secretary Gates, the New START does not define or limit rail-mobile, air-launched, or sea-borne ICBM launchers as START did. Specifically, the definitions in START with respect to rail-mobile ICBMs and rail-mobile launchers are completely absent in the New START. This seems to be a significant departure from the last treaty, and appears to mean that the Russians could build an unlimited number of rail-mobile launchers that would not be captured under the New START, as well as build a new ICBM to place on a rail-mobile launcher that would not be counted under the treaty. In the case of both the rail-mobile launcher and the new ICBM, the United States could appeal to the Bilateral Consultative Commission to add the launcher and ICBM as new types recognized by the New START, but the Russians could refuse to do so. Are you concerned about this issue?

Secretary CLINTON and Secretary GATES. No. Rail-mobile ICBMs are not specifically mentioned in the New START treaty because neither party currently deploys ICBMs in that mode. Nevertheless, the treaty covers all ICBMs and ICBM launchers, and would include any rail-mobile system, should either party decide to develop and deploy such a system.

119. Senator CHAMBLISS. Secretary Clinton and Secretary Gates, if the United States intended rail-mobile ICBMs and rail-mobile launchers to be limited under the New START, why did the United States not press for those systems to be defined in the treaty?

Secretary CLINTON and Secretary GATES. Rail-mobile ICBMs are not specifically mentioned in the New START treaty because neither party currently deploys ICBMs in that mode. Nevertheless, the treaty covers all ICBMs and ICBM launchers, including a rail-mobile system, should either party decide to develop and deploy such a system.

The New START treaty defines an ICBM launcher as a "device intended or used to contain, prepare for launch, and launch an ICBM." This is a broad definition that would cover all ICBM launchers, including potential future rail-mobile launchers.

Under this definition, a rail-mobile launcher of ICBMs would be accountable under the treaty. Although the previous definition of a rail-mobile launcher of ICBMs in the START treaty ("an erector-launcher mechanism for launching ICBMs and the railcar or flatcar on which it is mounted") was not carried forward into the New START treaty, the United States would nevertheless regard any launcher meeting the START treaty definition of an ICBM launcher as constituting an ICBM launcher subject to the New START treaty.

A rail-mobile launcher containing an ICBM would meet the treaty's definition of a "deployed launcher of ICBMs," which is "an ICBM launcher that contains an ICBM" and, along with any nondeployed rail-mobile launchers of ICBMs would fall within the limit of 800 on deployed and nondeployed launchers of ICBMs and SLBMs and deployed and nondeployed heavy bombers. Any ICBMs contained in rail-mobile launchers would count as deployed ICBMs and therefore fall within the 700 ceiling on deployed ICBMs, SLBMs, and heavy bombers.

Separate from the status of the rail-mobile ICBM launcher, all ICBMs associated with the rail-mobile system would be accountable as either existing or new types of ICBMs and therefore be subject to initial technical characteristics exhibitions, data exchanges, notifications, Type One and Type Two inspections, as appropriate, and application of unique identifiers on such ICBMs and, if applicable, on their launch canisters.

If a party chose to develop and deploy rail-mobile ICBMs, such missiles and their launchers would be subject to the treaty and its limitations. Specific details about the application of the above mentioned verification provisions would be worked out in the Bilateral Consultative Commission (BCC). Necessary adjustments to the definition of "mobile launchers of ICBMs"—to address the use of the word "self-propelled" in that definition—would also be worked out in the BCC.

120. Senator CHAMBLISS. Secretary Clinton and Secretary Gates, if the United States did not intend for the New START to limit rail-mobile, air-launched, or seaborne ICBM launchers, please explain why.

Secretary CLINTON and Secretary GATES. Given the treaty's principle of flexibility regarding the right of each party to determine its own force structure, it was not considered necessary to extend the START treaty's ban on deploying air-launched ballistic missiles or ballistic missiles on surface ships. Neither party has ever operationally deployed such systems. Should either party develop and deploy such a system, the United States and Russia would have the right to discuss, within the Bilateral Consultative Commission, the emergence of such a new kind of strategic offensive arm, including the applicability of provisions of the treaty to these new kinds of strategic offensive arms.

Rail-mobile ICBMs are not specifically mentioned in the New START treaty because neither party currently deploys ICBMs in that mode. Nevertheless, the treaty covers all ICBMs and ICBM launchers, including a rail-mobile system, should either party decide to develop and deploy such a system.

The New START treaty defines an ICBM launcher as a "device intended or used to contain, prepare for launch, and launch an ICBM." This is a broad definition that would cover all ICBM launchers, including potential future rail-mobile launchers.

Under this definition, a rail-mobile launcher of ICBMs would be accountable under the treaty. Although the previous definition of a rail-mobile launcher of ICBMs in the START treaty ("an erector-launcher mechanism for launching ICBMs and the railcar or flatcar on which it is mounted") was not carried forward into the New START treaty, the United States would nevertheless regard any launcher meeting the START treaty definition of an ICBM launcher as constituting an ICBM launcher subject to the New START treaty.

A rail-mobile launcher containing an ICBM would meet the definition of a "deployed launcher of ICBMs," which is "an ICBM launcher that contains an ICBM" and along with any nondeployed rail-mobile launchers of ICBMs would fall within the limit of 800 on deployed and nondeployed launchers of ICBMs and SLBMs and deployed and nondeployed heavy bombers. The ICBMs contained in rail-mobile launchers would count as deployed ICBMs and therefore fall within the 700 ceiling on deployed ICBMs, SLBMs, and heavy bombers.

Separate from the status of the rail-mobile ICBM launcher, all ICBMs associated with a potential future rail-mobile system would be accountable as either existing or new types of ICBMs and therefore be subject to initial technical characteristics exhibitions, data exchanges, notifications, Type One and Type Two inspections, as appropriate, and application of unique identifiers on such ICBMs and, if applicable, on their launch canisters.

Because of these treaty provisions, if a party chose to develop and deploy rail-mobile ICBMs, such missiles and their launchers would be subject to the treaty and its limitations. Specific details about the application of the above mentioned verification provisions would be worked out in the BCC.

VERIFICATION

121. Senator CHAMBLISS. Secretary Clinton, Secretary Gates, and Secretary Chu, under START, we were able to confidently count the number of mobile missiles, particularly because of our ability to monitor at Votkinsk, Russia. Additionally, the telemetry we were able to obtain provided good intelligence on warhead, throw weight capability, and good insight to ensure missiles did not test more warheads than the Russians attributed to a missile. Without similar verification provisions in the New START, how will our ability to verify Russian mobile missiles or any information about new Russian systems capabilities be affected?

Secretary CLINTON, Secretary GATES, and Secretary CHU. This topic is included in a classified National Intelligence Estimate on Monitoring the New START treaty that was provided to the Senate on June 30, 2010.

122. Senator CHAMBLISS. Secretary Clinton, Secretary Gates, and Secretary Chu, with the Russian's stated goal of developing new missile systems and turning toward more MIRV missiles, how can the United States be confident about the number of warheads a new Russian missile will be capable of carrying without telemetry in the New START?

Secretary CLINTON, Secretary GATES, and Secretary CHU. This topic is included in a classified National Intelligence Estimate on Monitoring the New START treaty that was provided to the Senate on June 30, 2010.

123. Senator CHAMBLISS. Secretary Clinton, Secretary Gates, and Secretary Chu, under START, warhead limits were constrained by the number of warheads a missile was actually capable of holding. Under the New START, only actual, deployed warheads are counted. For example, the Russian SS–18 is capable of holding 10 warheads, but only the actual number of deployed warheads counts against the New START limits. With the SS–18, there is a possibility that the Russians could only deploy one warhead per missile—which would count toward the limit—and then have the remaining nine warheads stored nearby waiting to be loaded, if they chose to, at a moment's notice. How do the verification procedures prevent the Russians from doing this?

Secretary CLINTON. I concur, and would add that the standard for the New START treaty verification regime remains, as under the START treaty, "effective verification." As explained by Ambassador Paul Nitze in the context of the INF Treaty ratification deliberations in 1988, effective verification means "we want to be sure that, if the other side moves beyond the limits of the treaty in any militarily significant way, we would be able to detect such violation in time to respond effectively and thereby deny the other side the benefit of the violation." This standard was reaffirmed in the START treaty context by Secretary of State James Baker in 1992.

Secretary GATES. The treaty permits the Parties to structure their forces as they see fit, a flexibility which benefits the United States. The treaty's verification regime is not intended to "prevent" such a scenario but would enable the United States to detect large-scale Russian downloading of its SS–18 ICBMs or other ballistic missiles. For additional information, please see the classified National Intelligence Estimate on Monitoring the New START treaty which was provided to the Senate on June 30, 2010.

Secretary CHU. I concur.

124. Senator CHAMBLISS. Secretary Clinton, Secretary Gates, and Secretary Chu, is there a way to confirm the actual number of warheads that the Russians have?

Secretary CLINTON. The New START treaty's procedures for inspections of ICBM and SLBM "reentry vehicles"—which count as warheads on deployed missiles—are part of the treaty's Type One inspections. These inspections will give U.S. inspectors up to 10 opportunities each year to spot check the accuracy of declared data on the numbers of warheads emplaced on selected deployed ICBMs, SLBMs, and heavy bombers. These inspections will help to confirm compliance with the Article II central limit of 1,550 warheads on deployed ICBMs, deployed SLBMs, and nuclear warheads counted for deployed heavy bombers. The treaty does not include any limitations on the number of nondeployed warheads a party may have. Nor are tactical (non-strategic) nuclear weapons limited by New START. For more discussion of this topic, please see the classified National Intelligence Estimate on Monitoring the New START treaty, which was provided to the Senate on June 30, 2010.

Secretary GATES. I concur.

Secretary CHU. I concur.

125. Senator CHAMBLISS. Secretary Clinton and Secretary Gates, will there be an incentive to deploy fewer warheads, so the Russians do not have to count all their warheads under the New START limits?

Secretary CLINTON. New START was created with a view to maintain flexibility by allowing each party to determine for itself how to structure its strategic nuclear forces within the treaty's limits. The treaty applies equally to both Parties.

New START has three central limits: the number of accountable deployed warheads (1,550); the number of deployed ICBMs, SLBMs, and heavy bombers (700); and the number of deployed and nondeployed ICBM launchers, SLBM launchers, and heavy bombers (800).

These three limits, while separate, are interrelated with respect to how they balance the choices each party can make with respect to its force structure.

For example, if the Russian Federation elected to increase the number of deployed ICBMs, SLBMs, and heavy bombers within the limit, and Russia was already at the treaty limit for deployed warheads, it would have to decrease the number of reentry vehicles emplaced on deployed ICBMs or SLBMs in order to stay within the limit for deployed warheads.

Secretary GATES. I concur.

126. Senator CHAMBLISS. Secretary Clinton and Secretary Gates, the Russians do not have to tell us where all their warheads are, just the number of deployed warheads. Our inspectors will be able to confirm the number of warheads that the Russians asserted they had on one missile during an inspection. Are we supposed to

trust the Russians if they assert that they have less warheads deployed than the missile is capable of carrying, given the other 1,549 warheads they are permitted?

Secretary CLINTON. The New START treaty's procedures for inspections of ICBM and SLBM "reentry vehicles"—which count as warheads—are part of the treaty's Type One inspections. These short notice inspections give inspectors up to ten opportunities each year to spot check the accuracy of declared data on the numbers of warheads emplaced on selected deployed ICBMs and SLBMs. These inspections will help to confirm compliance with the Article II central limit of 1,550 warheads on deployed ICBMs, deployed SLBMs, and nuclear warheads counted for deployed heavy bombers.

For more discussion, see the classified National Intelligence Estimate on Monitoring the New START treaty, which was provided to the Senate on June 30, 2010, and the State Department's Section 306 report which addresses the determinations of the U.S. Government as to the degree to which the limits of the New START treaty can be verified. The Section 306 report was published on July 12, 2010, and has been provided to the Senate.

Secretary GATES. I concur. In addition, Admiral Mullen, the Joint Chiefs, the Commander of U.S. Strategic Command, and I assess that Russia will not be able to achieve militarily significant cheating or breakout under New START, due to both the treaty's verification regime and the inherent survivability and flexibility of the planned U.S. strategic force structure. The survivable and flexible U.S. strategic posture planned for New START will also help deter any future Russian leaders from cheating or breakout from the treaty, should they ever have such an inclination.

127. Senator CHAMBLISS. Secretary Clinton, Secretary Gates, and Secretary Chu, given the number of inspection sites, and the fact the New START only allows for a maximum of 10 warhead inspections a year, how confident are you that the United States will have a good accounting of the number of deployed Russian warheads?

Secretary CLINTON, Secretary GATES, and Secretary CHU. This topic is included in a classified National Intelligence Estimate on Monitoring the New START treaty that was provided to the Senate on June 30, 2010.

128. Senator CHAMBLISS. Secretary Clinton, Secretary Gates, and Secretary Chu, what will verification of the number of warheads on one missile tell us, especially when one missile is permitted to be deployed with any number of warheads?

Secretary CLINTON. The New START treaty's procedures for inspections of ICBM and SLBM "reentry vehicles"—which count as warheads—are part of the treaty's Type One inspections. During pre-inspection procedures for a Type One inspection, the Russian Federation must declare the number of reentry vehicles emplaced on each deployed ICBM or SLBM (which U.S. inspectors can correlate with the missile's Unique Identifier) located at the ICBM base or submarine base at the time pre-inspection restrictions are initiated. The Type One inspections provide ten opportunities annually for inspectors to spot check the accuracy of the declared data on the numbers of warheads emplaced on designated, deployed ICBMs and SLBMs.

This topic is also included in a classified National Intelligence Estimate on the Intelligence Community's ability to monitor the New START treaty that was provided to the Senate on June 30, 2010.

Secretary GATES. I concur.

Secretary CHU. I concur.

DEPLOYED DELIVERY VEHICLES

129. Senator CHAMBLISS. Secretary Clinton, Secretary Gates, and Admiral Mullen, much has been said about the New START further reducing the number of nuclear weapons the United States and Russia have in their inventory. However, it is true that, based on the counting rules—specifically in relation to bombers—this treaty actually allows for a significant increase in deployed warheads over the previous START. Also, given the fact that the Russians were already planning to reduce their number of deployed systems and would have soon met these new limits even without the treaty, only the United States has to make real reductions to our nuclear forces to comply with the New START.

General Cartwright testified last year that he would be very concerned if we got below 800 deployed delivery vehicles, and the New START would take us down to 700 deployed delivery vehicles. While I can agree that limits are good things, perhaps even if they are high, I do not think we should be celebrating since the limits

in the New START really only constrain the United States and, in fact, can be complied with in ways that result in many more warheads being deployed. Please explain the reasoning behind why we agreed to 700 deployed delivery vehicles.

Secretary CLINTON, Secretary GATES, and Admiral MULLEN. The New START limit of 700 deployed ICBMs, SLBMs, and nuclear-capable heavy bombers will allow the United States to retain all 14 current SSBNs, while reducing the number of accountable SLBMs by 96 relative to the previous START treaty's counting rules (from 336 to 240). The United States will be able to do this, taking advantage of the treaty's provisions, by converting or eliminating 56 SLBM launchers and not deploying SLBMs in an additional 40 launchers. In addition, the United States will convert 34 or more a subset of B–52H bombers to a conventional-only role, so that they are no longer accountable under the treaty. By taking advantage of these treaty provisions, the United States will have to eliminate or keep in a nondeployed status only 30 to 50 ICBM launchers of the 450 Minuteman III active silos today. In sum, the decision to agree to a limit of 700 deployed strategic delivery vehicles resulted from an updated assessment of U.S. force deployment options in the light of different counting rules under New START. U.S. force structure plans under New START are supported by General Cartwright, as well as by Admiral Mullen and the rest of the Joint Chiefs of Staff, Commander, U.S. Strategic Command General Chilton, and me.

130. Senator CHAMBLISS. Secretary Gates, what has changed since last year when General Cartwright indicated that 800 deployed delivery vehicles should be the bare minimum?

Secretary GATES. The decision to agree to a limit of 700 deployed strategic delivery vehicles resulted from an updated assessment of U.S. force deployment options in the light of different counting rules under New START. Gen Cartwright's statement was made in the context of the previous START treaty's counting rules; subsequently, New START provisions were agreed. These include an agreement not to count nondeployed ICBMs and SLBMs as part of the central limit on delivery vehicles, not to count converted individual SLBM launchers on strategic submarines, and not to count bombers that have been converted to conventional-only missions. Because of these provisions, under the 700 limit of the New START treaty, the United States will be able to retain all 14 current SSBNs, while reducing the number of accountable SLBMs by 96 (from 336 to 240). In addition, the United States will convert 34 or more B–52H bombers to a conventional-only role, so that they are no longer accountable under the treaty.

In sum, the treaty's limits of 700 deployed strategic delivery vehicles will support strategic stability by allowing the United States to retain a robust Triad of strategic delivery systems.

131. Senator CHAMBLISS. Secretary Clinton and Secretary Gates, how do you respond to the fact that the New START would permit a significantly larger number of deployed nuclear warheads than previous treaties?

Secretary CLINTON. We would not characterize the New START treaty as permitting a significantly larger number of deployed nuclear warheads than previous treaties. The limit of 1,550 for warheads on deployed ICBMs, deployed SLBMs, and counted for deployed heavy bombers is lower than the Moscow Treaty limit of 1,700–2,200 strategic nuclear warheads, and lower than the START limit of 6,000 warheads attributed to ICBMs, SLBMs, and heavy bombers.

It is important to note that under each of these treaties, the method of counting warheads differs, which can make attempts at direct comparisons somewhat misleading. For example, under the expired START treaty, an attribution rule credited each missile type with an agreed number of warheads, regardless of how many warheads were actually emplaced on that missile. Under the Moscow Treaty, each party could determine for itself what counted against the limit on strategic nuclear warheads, with the result that the Parties did not use identical counting rules with respect to this limit.

In the New START treaty, the treaty requires the parties to count the actual number of reentry vehicles on each deployed ICBM and deployed SLBM, and to attribute one warhead to each deployed heavy bomber.

As for the bomber counting rule under New START, this attribution rule was adopted because on a day-to-day basis neither the United States nor the Russian Federation maintains any nuclear armaments loaded on its deployed heavy bombers. If the counting approach adopted for deployed ballistic missiles had been applied to deployed heavy bombers, each deployed heavy bomber equipped for nuclear armaments would have been counted with zero nuclear warheads. The New START treaty approach strikes a balance between the fact that neither side loads nuclear

armaments on its nuclear capable heavy bombers on a day-to-day basis and the fact that these heavy bombers nonetheless have the capability to deliver nuclear armaments that are stored in weapons storage bunkers on or near their air bases.

Secretary GATES. I concur. I would further add that New START procedures for the inspection of deployed warheads are part of the treaty's Type One inspections. These short notice inspections are intended to spot check the accuracy of declared data on the number of warheads emplaced on deployed ICBMs, deployed SLBMs and heavy bombers designated for inspection.

LEVEL OF RISK

132. Senator CHAMBLISS. Secretary Gates and Admiral Mullen, unlike the Russians, the United States has treaty obligations with at least 30 other nations. Are you convinced that the United States can meet these treaty obligations and carry out extended deterrence at the levels required by the New START?

Secretary GATES and Admiral MULLEN. Yes. Traditionally, a credible U.S. "nuclear umbrella" has been provided by a combination of means—the strategic forces of the U.S. Triad, non-strategic nuclear weapons deployed forward in key regions, and U.S.-based nuclear weapons that could be deployed forward quickly to meet regional contingencies. The mix of deterrence means has varied over time and from region to region.

Today, there are separate choices to be made in partnership with allies in Europe and Asia about what posture best serves our shared interests in deterrence and assurance and in moving toward a world of reduced nuclear dangers. The United States and its NATO allies maintain forward deployed tactical nuclear weapons to enhance deterrence. Within the regional context, the United States relies on additional capabilities to support extended deterrence and power projection, including: conventional force capabilities, BMDs, allied capabilities, advanced technologies, and modernization and maintenance of existing forces, to name a few. Finally, the United States retains the capability to rapidly upload additional strategic nuclear weapons if necessary.

During consultations during the development of the 2010 NPR and since the release of the NPR and the signing of New START, Allies have told us they are comfortable with our planned nuclear force posture, which is consistent with the NPR recommendations and the New START treaty. Allied governments have noted that future U.S.-Russian nuclear arms reduction negotiations should seek to reduce Russian tactical nuclear weapons.

Lastly, the United States will sustain safe, secure, and effective nuclear forces to deter any potential adversary so long as nuclear weapons exist. U.S. nuclear force reductions will be implemented in ways that maintain the reliability and effectiveness of our extended deterrent for all of our allies and partners.

133. Senator CHAMBLISS. Secretary Gates and Admiral Mullen, what is the assumed level of risk to the United States defenses and its extended deterrence beneficiaries to reach the New START levels?

Secretary GATES and Admiral MULLEN. The United States, and our Allies and partners, will not assume any additional risk due to the United States being limited to New START treaty force levels. The treaty will allow the United States to retain a strong Triad, and will not constrain our conventional capabilities (including prompt global strike), our missile defenses, or our ability to modernize our nuclear weapons complex. The risk of misunderstanding and worst-case military planning will be reduced by application of the treaty's data exchange and verification provisions.

NUCLEAR MODERNIZATION

134. Senator CHAMBLISS. Secretary Chu, the issue of nuclear weapons modernization as it relates to the New START is receiving lots of attention. First of all, as some of my colleagues have commented, it does not appear that the proposed modernization plan represents much, if any, increase over what was already going to occur. The plan submitted to Congress also discusses modernizing only one leg of the strategic triad, the submarine leg, and the bulk of the funding in the plan is to maintain current platforms rather than develop new ones.

I am also very concerned about the bias against the full spectrum of modernization for our nuclear warheads. There is clearly a bias against replacement, which requires special presidential and congressional authorization. From a national security perspective, this is clearly unnecessary and works against our safety, security,

and ability to ensure the security of our allies. It only makes sense from a domestic, political perspective. As the leader of the nuclear weapons modernization and sustainment complex, how will you instruct those who work for you when it comes to considering the "full range of options" for modernization?

Secretary CHU. The path forward is articulated in the NPR and is further described in the report submitted to Congress pursuant to section 1251 of the National Defense Authorization Act for fiscal year 2010, entitled: "The New START Treaty Framework and Nuclear Force Structure Plans." Those documents make clear that the Laboratory Directors, and for my purposes, all of those responsible for the technical work that lies behind the development and evaluation of life extension approaches, "will be expected to provide findings associated with the full range of LEP approaches, and to make a set of recommendations based solely on their best technical assessments of the ability of each LEP approach to meet critical stockpile management goals (weapon system safety, security, and effectiveness)."

135. Senator CHAMBLISS. Secretary Chu, will you empower the experts in DOE to make their best technical and strategic recommendations for our nuclear enterprise, regardless of how they may be received politically, or are you going to communicate that, indeed, there is a bias against weapon replacement and discourage them from recommending that option, even if replacement is the best option?

Secretary CHU. Not only are DOE and NNSA experts empowered to make their best technical and strategic recommendations, they are and will continue to be expected to do so. As the report entitled: "The New START Treaty Framework and Nuclear Force Structure Plans" makes clear, they "will be expected to provide findings associated with the full range of LEP approaches, and to make a set of recommendations based solely on their best technical assessments of the ability of each LEP approach to meet critical stockpile management goals (weapon system safety, security, and effectiveness)."

136. Senator CHAMBLISS. Secretary Chu, under what conditions would weapon replacement be the best option?

Secretary CHU. As described in the NPR, replacement of nuclear components will be undertaken if critical Stockpile Management Program goals—that is, weapon system safety, security, and effectiveness—cannot otherwise be met, and if specifically authorized by the President and approved by Congress.

GOOD WILL

137. Senator CHAMBLISS. Secretary Chu, in your testimony before this committee, you reiterate that President Obama and the NPR "put preventing the spread of nuclear weapons to terrorists and to states that don't already possess them at the very top of our national security agenda." The administration has also highlighted the good will that the New START will create with the Russians and the international community. Yet, the security of Russia's nuclear materials remains a concern, and we have seen criminals attempt to smuggle materials thought to have come from Russia. Can you explain how the New START, and the good will it will allegedly create, will increase cooperation with the Russians on securing their nuclear material?

Secretary CHU. Our renewed focus on improving our relations with Russia, including the negotiations on the New START treaty, has led to a greater understanding and increased cooperation between the United States and Russia in a number of areas, especially toward the President's goal of securing all vulnerable nuclear materials worldwide. This renewed relationship is a key factor as we work toward curbing nuclear threats around the globe. The New START treaty demonstrates the continuing commitment of the United States and Russia to reduce our respective nuclear arsenals consistent with obligations under the Nuclear NPT. Enhanced cooperation between the United States and Russia in the nuclear arena will contribute to the positive international environment needed to reinforce programs to secure and safeguard nuclear material stockpiles worldwide, and to strengthen the NPT.

Clearly, the responsibility for Russia's implementation of the New START treaty will belong to the Government of the Russian Federation. The U.S. Cooperative Threat Reduction (CTR) program, in concert with the nonproliferation programs of the Department of Energy, has historically played a very significant role in securing Russian nuclear weapons and stocks of fissile materials. The role of these programs will be, as it was throughout the implementation of the START treaty, to incentivize the Russian Government to continue the excellent cooperation it has had with the

United States in eliminating Russian strategic delivery systems and in enhancing nuclear weapons storage and transportation security.

LEGAL FRAMEWORK

138. Senator CHAMBLISS. Secretary Clinton and Admiral Mullen, you both stated during the hearing that, without the New START, the United States would have no treaty with the Russians that constrains our nuclear forces. Secretary Clinton, you specifically stated that the choice before the Senate "is between this treaty and no legal obligation for Russia to keep its strategic nuclear forces below an agreed level." I note that the United States and Russia are currently bound by the limits in SORT, which sets a limit of 1,700 to 2,200 warheads by the end of 2012. In my view, there is, in fact, a legal framework to govern the United States-Russia nuclear relationship for the next 2.5 years. While it is true that the Moscow Treaty expires after 2012, the limits are in force until it does. The Moscow Treaty also has no verification provisions, but the United States and Russia have agreed to abide by START verification provisions, even though START expired. Do you agree that the Moscow Treaty provides a legal framework to limit U.S.-Russia nuclear warheads until it expires at the end of 2012?

Secretary CLINTON. The Moscow Treaty (or SORT), which will remain in force until December 31, 2012, unless superseded earlier by a subsequent agreement such as the New START treaty, requires the United States and Russia to reduce and limit strategic nuclear warheads to 1,700–2,200 for each party by December 31, 2012. The Moscow Treaty has no other limits, nor does it contain any verification or transparency measures. While Presidents Obama and Medvedev issued a Joint Statement on the eve of START's expiration expressing "our commitment, as a matter of principle, to continue to work together in the spirit of the START treaty following its expiration," there are currently no legally binding verification measures in place with respect to the Moscow Treaty. In the absence of New START's entry into force, we have to rely solely on National Technical Means to monitor Russian strategic forces.

Admiral MULLEN. The Moscow Treaty limit will remain legally-binding until its expiration on 31 December 2012, unless it is superseded by entry into force of the New START treaty. The United States and Russia have agreed to the provisional application of select New START treaty provisions, in accordance with Part Eight of the Protocol to the treaty. However, these provisions do not include verification procedures and the United States and Russia did not agree to continue implementing START verification procedures after START expired.

QUESTIONS SUBMITTED BY SENATOR JOHN THUNE

DELIVERY VEHICLE FORCE STRUCTURE

139. Senator THUNE. Secretary Gates, the NPR stated that it "conducted extensive analysis of alternative force structures under the New START," but so far you have only detailed what the United States nuclear force structure will look like up to 720 deployed strategic nuclear delivery vehicles. Please share the NPR analysis concluding that the United States can carry out its national security strategy and national military strategy with only 700 deployed strategic nuclear delivery vehicles, as would be required to comply with the New START central limits.

Secretary GATES. The NPR identified a priority goal for U.S. negotiators to ensure that strategic delivery vehicles accountable under the previous START treaty but no longer associated with deployed nuclear weapons not be counted under New START. The achievement of this goal resulted in U.S. confidence that over 300 so-called "phantom" strategic delivery vehicles accountable under the previous treaty, including for example 96 launchers associated with conventional-only SSGNs, would not be included under New START limits.

In considering acceptable New START limits after "phantom" delivery vehicles were removed from consideration, the NPR focused on four considerations:

- Supporting strategic stability through an assured second-strike capability;
- Retaining sufficient force structure in each leg to allow the ability to hedge effectively by shifting weight from one Triad leg to another if necessary due to unexpected technological problems or operational vulnerabilities;
- Retaining a margin above the minimum required nuclear force structure for the possible addition of non-nuclear prompt-global strike capabilities

(conventionally-armed ICBMs or SLBMs) that would be accountable under the treaty; and

• Maintaining the needed capabilities over the next several decades or more, including retaining a sufficient cadre of trained military and civilian personnel and adequate infrastructure.

First, the New START treaty enables us to continue to maintain a very effective and survivable force structure that can assure the United States the ability to conduct a devastating second strike, even after an attempt by an opponent at a disarming first strike, as well as to conduct more limited and discrete strikes.

The second criterion was met because the United States will be able to retain sufficient capabilities in each leg of the Triad. As noted in the Section 1251 report, "New START Framework and Nuclear Force Structure Plans," the United States plans to sustain 14 SSBNs with 240 deployed SLBMs, up to 420 deployed ICBMs, and up to 60 deployed nuclear-capable heavy bombers. One of the specific force structures evaluated in the NPR and deemed adequate, included 240 deployed SLBMs, 400 deployed ICBMs, and 60 deployed nuclear-capable heavy bombers. Because the New START treaty allows the freedom to establish the desired mix of strategic forces by the end of its 7-year implementation period, and change over time, the United States does not need to decide the exact mix of strategic forces at this time.

The third criterion was met because the treaty's ceilings allow for a sufficient margin to accommodate the deployment of a limited number of conventionally-armed ICBMs and SLBMs, should the United States elect to deploy them, while excluding from accountability conventional B–1B and B–52H heavy bombers equipped to deliver only non-nuclear armaments and SSGN submarines that are incapable of launching SLBMs. The United States also stated during the negotiations that it would not consider future, strategic range, non-nuclear systems that do not otherwise meet the definitions of the treaty to be "new kinds of strategic offensive arms" for purposes of the treaty.

Finally, the administration has proposed a robust plan to revitalize the nuclear weapons complex in order to meet the fourth criterion.

140. Senator THUNE. Secretary Gates, please provide the analysis of alternative force structures that would comply with the New START central limits.

Secretary GATES. Please see answers to questions #133 and #139.

SECTION 1251 REPORT

141. Senator THUNE. Secretary Gates, press reports indicate the administration plans to invest $100 billion over the next decade in nuclear delivery systems. About $30 billion of this total will go toward development and acquisition of a new strategic submarine. According to estimates by STRATCOM, the cost of maintaining our current dedicated nuclear forces is approximately $5.6 billion per year. This leaves roughly $14 billion of the $100 billion the administration intends to invest. This $14 billion is not nearly sufficient to develop and acquire a next-generation bomber, a follow-on ICBM, a follow-on air-launched cruise missile, and a conventional prompt global strike capability. Why did you not make a decision to pursue these programs in the 1251 Report accompanying the New START?

Secretary GATES. As stated in the one page, unclassified summary of the 1251 report, the administration intends to invest well over $100 billion in modernizing strategic delivery systems. Alternatives for a follow-on bomber are being developed in the ongoing Long Range Strike Study for consideration with the President's fiscal year 2012 budget. An Analysis of Alternatives on the follow-on nuclear-armed air-launched cruise missiles (ALCM) is currently underway. Although a decision on any follow-on ICBM is not needed for several years, studies to inform that decision will begin in fiscal year 2011 and fiscal year 2012. The studies and development programs for these systems will consider a range of possible options, with the objective of defining a cost-effective approach that supports continued reductions in U.S. nuclear weapons while promoting stable deterrence.

142. Senator THUNE. Secretary Gates, is there a chance you could decide against a new bomber, air-launched cruise missile, or follow-on ICBM?

Secretary GATES. While I will not speculate regarding future decisions, as I have stated numerous times, I support a strong Triad under the New START treaty, and I am committed to making necessary investments for both delivery systems and the nuclear weapons complex. It is worth noting that the investments needed to sustain

the U.S. nuclear arsenal and nuclear weapons complex under New START and beyond will be the work of multiple administrations and Congresses.

143. Senator THUNE. Secretary Gates, how do we know the administration will pursue these necessary programs, such as the bomber or follow-on ICBM?

Secretary GATES. The NPR clearly attests to the commitment of the executive branch to sustain an effective nuclear deterrent for the long term-and New START preserves our ability to do so. Today's Minuteman III ICBMs will be sustained until 2030 as directed by Congress, nuclear-capable B–52Hs can be sustained to the 2030s, and B–2As to the 2040s. Analysis of any follow-on ICBM will start in 2011. There is time to do this analysis, and given both the resources and military capabilities involved, an imperative to make well-informed decisions at the appropriate time.

144. Senator THUNE. Secretary Gates, according to the most recent briefs I have seen, DOD expects the current nuclear bomber force to remain in service through 2040. Thirty more years is a long time for a bomber that was built 50 years ago. Proponents of this plan say they can last that long with upgrades. However, physically remaining in service is significantly different than remaining survivable in a future high threat combat scenario. Since the NPR recognizes the need for a nuclear triad, what is your plan to replace the aging nuclear bomber force so that the nuclear triad stays survivable in the future?

Secretary GATES. The NPR determined that retaining all three legs of the Triad will best maintain strategic stability at reasonable cost, while hedging against potential technical problems or vulnerabilities. Accordingly, the Air Force will retain the B–52 for nuclear mission requirements beyond 2020 and is investing more than $1.2 billion over the next 5 years to modernize the B–52. In addition, DOD will invest more than $1 billion over the next 5 years to support upgrades to the B–2 stealth bomber. These enhancements will help sustain its survivability and improve mission effectiveness. The Department of Defense is examining alternative follow-on bomber approaches in its ongoing Long Range Strike Study, which is to be completed this fall and will provide an important basis for the development of plans for moving forward in this area.

145. Senator THUNE. Secretary Gates, my understanding is that an ICBM-based prompt global strike platform would be counted against the 700 deployed delivery vehicles. If we decide to develop that system, which of the three legs of the nuclear triad would be further reduced to accommodate prompt global strike?

Secretary GATES. No decision regarding prompt global strike system has been taken and cannot be taken before other decisions are made about what type of conventional long-range strike capabilities are useful and available during the period that the New START treaty (NST) is in force. A variety of prompt global strike systems are being assessed within the Long-Range Strike Study that is to be completed this fall. As you know, NST provides flexibility to each party to determine its own strategic force structure. As stipulated in the report submitted with the New START treaty pursuant to Section 1251 of the National Defense Authorization Act for Fiscal Year 2010, the United States will pursue a future force structure under the NST that will preserve adequate flexibility, including possible accountable conventional prompt global strike systems currently under study by DOD. In addition, NPR analysis concluded that NST delivery vehicle and strategic warhead limits allowed retention of a margin above the minimum required nuclear force structure for the possible addition of non-nuclear prompt-global strike capabilities (conventionally-armed ICBMs or SLBMs) that would be accountable under the treaty.

If the United States decides to develop a prompt global strike system that would be accountable under New START, the Joint Chiefs and I agree that it should involve small numbers of strategic delivery vehicles. Under the baseline plan summarized in the Section 1251 report, "New START Framework and Nuclear Force Structure Plans," to Congress, the United States will retain 240 deployed SLBMs, up to 60 heavy bombers, and up to 420 deployed ICBMs under New START. Given the 7 year implementation period of the treaty, and each side's freedom to select its desired force structure and change it over time, decisions about changes involving small numbers of the 700 allowed deployed strategic delivery vehicles should be made after such a decision to deploy these systems.

146. Senator THUNE. Secretary Gates and Admiral Mullen, what is your estimate of how the Russians will configure their strategic forces under the New START?

Secretary GATES and Admiral MULLEN. This topic is addressed in the National Intelligence Estimate on monitoring the New START treaty, which was provided to the Senate on June 30, 2010.

147. Senator THUNE. Secretary Gates and Admiral Mullen, what impact, if any, would Russian configuration of their strategic forces in response to the New START have on the way the President decides to configure our strategic forces?

Secretary GATES and Admiral MULLEN. The United States will continue to configure and posture its forces to maintain the overall force's combined qualities of survivability, responsiveness, flexibility, and effectiveness for both large-scale and limited contingencies. We do not anticipate significant alterations as being necessary due to any Russian changes, because U.S. forces have been developed and deployed to minimize their sensitivity to changes in other nations' force postures.

DELIVERY VEHICLES

148. Senator THUNE. Secretary Gates and Admiral Mullen, during testimony before this committee last July, General Cartwright expressed the view that he "would be very concerned" about the viability of the nuclear triad if we got below 800 deployed delivery vehicles. The New START establishes a level of 700 deployed strategic delivery vehicles. I note that General Cartwright stated his concern after the NPR team had already conducted detailed analysis in spring 2009 to determine negotiating positions for the New START on an appropriate limit on strategic delivery vehicles. What beneficial geopolitical developments have taken place in the interim that compel reductions in the United States nuclear arsenal down to 700 deployed strategic nuclear delivery vehicles?

Secretary GATES and Admiral MULLEN. The decision to agree to a limit of 700 deployed strategic delivery vehicles did not result from a change in the security environment, but from an updated assessment of U.S. force deployment options in the light of progress achieved in the negotiations. The testimony you refer to in your question was delivered before the definitional difference between deployed and nondeployed ICBM and SLBM launchers had been agreed, and before the sides had agreed to the conversion of individual SLBM launchers on strategic submarines. Thus, the "800 deployed delivery vehicles" figure referred to in the testimony would, for example, have included U.S. strategic delivery systems that will now count as nondeployed (e.g., two SSBNs in overhaul). Once these provisions were agreed, it became clear that we could sustain a strong Triad and meet deterrence and hedging requirements within a limit of 700 deployed ICBMs, SLBMs, and nuclear-capable heavy bombers. The U.S. senior military leadership has stated its support for this result.

149. Senator THUNE. Secretary Gates and Admiral Mullen, why are the Joint Chiefs not concerned by the New START, given the number of allowable deployed delivery vehicles is 100 below General Cartwright's comfort level?

Secretary GATES and Admiral MULLEN. General Cartwright, as well as the rest of the Joint Chiefs of Staff, Commander, U.S. Strategic Command, and both of us support the New START treaty including the limit of 700 on deployed strategic delivery vehicles. The New START limit will allow the United States to retain all 14 current SSBNs, while reducing the number of accountable SLBMs by 96 relative to the previous START treaty's counting rules (from 336 to 240). The United States will be able to do this by taking advantage of the treaty's provisions by converting or eliminating 56 SLBM launchers and not deploying SLBMs in an additional 40 launchers. In addition, the United States will convert 34 or more a subset of B–52H bombers to a conventional-only role, so that they are no longer accountable under the treaty. By taking advantage of these treaty provisions, the United States will have to eliminate or keep in a nondeployed status only 30 to 50 ICBM launchers of the 450 Minuteman III active silos today. In sum, the decision to agree to a limit of 700 deployed strategic delivery vehicles resulted from an updated assessment of U.S. force deployment options in the light of different counting rules under New START.

150. Senator THUNE. Secretary Gates and Admiral Mullen, what were the assumptions going into the New START negotiations that drove our level of acceptance to reduced deployed delivery vehicle numbers?

Secretary GATES and Admiral MULLEN. Please see the answer to question #149.

POTENTIAL CONFLICTING MESSAGES TO THE AIR FORCE

151. Senator THUNE. Secretary Gates and Admiral Mullen, in an effort to build up the nuclear enterprise, the Air Force recently accomplished an extensive restructuring, which included, among other things, adding a new Global Strike Command, adding an additional B–52 nuclear capable bomber squadron, and multiple changes to procedures and testing. This was all part of a tremendous and ongoing effort to reinvigorate the nuclear enterprise. However, by ratifying the New START, it would seem we are providing conflicting guidance to our nuclear force and telling them we want to draw down and scale back the nuclear mission. For example, this treaty would specifically reverse the direction the Air Force was just given to build up the B–52 nuclear capability by cutting the number of nuclear capable B–52s. Are you at all worried about undercutting the Air Force's improved emphasis on the nuclear mission after the problems the Air Force had with the nuclear mission a few years ago?

Secretary GATES and Admiral MULLEN. No. The conclusion of the New START treaty in no way reduces the emphasis the Department of Defense will place upon continuing to strengthen the Air Force nuclear enterprise. As we reported in the Section 1251 report, the United States plans to maintain up to 60 nuclear-capable heavy bombers and up 420 silo-based Minuteman III ICBMs, each carrying a single re-entry vehicle. Consequently, the Air Force will remain responsible for maintaining the trained and ready force to man two of the three legs of the U.S. strategic triad, an enduring obligation that will continue to require very strong emphasis on the nuclear mission. Sustaining the U.S. Air Force's nuclear enterprise is critical to U.S. security, and we and Air Force Chief of Staff, General Norton Schwartz, are confident that this objective can be met under the New START treaty.

STRATEGIC OFFENSIVE REDUCTIONS TREATY

152. Senator THUNE. Secretary Clinton, in your prepared remarks you asserted that in considering the New START, the choice before the Senate "is between this treaty and no legal obligation for Russia to keep its strategic nuclear forces below an agreed level." If the New START does not enter into force, won't SORT govern the nuclear security relationship between the United States and Russia?

Secretary CLINTON. While the Moscow Treaty (or SORT) would remain in force until December 31, 2012, that treaty only requires the United States and Russia to reduce and limit strategic nuclear warheads to 1,700–2,200 for each party by December 31, 2012. The Moscow Treaty has no other limits, nor does it contain any verification or transparency measures.

153. Senator THUNE. Secretary Clinton, if the New START does not enter into force, wouldn't extending SORT some time before December 31, 2012, as provided for in Article IV(2) of SORT, be a choice?

Secretary CLINTON. In accordance with its terms, the Moscow Treaty (or SORT) may be extended by agreement of the Parties or superseded earlier by a subsequent agreement. However, as noted above, the Moscow Treaty contains no verification or transparency measures.

REDUCTIONS OF NUCLEAR WEAPONS

154. Senator THUNE. Secretary Clinton, in your prepared remarks you asserted that the completion of the New START "makes clear that we are committed to real reductions, and to upholding our end of the bargain under the NPT." The United States has been reducing its nuclear weapons stockpile for 40 years, and that fact is very well known. It did not take the declassification of our stockpile numbers at the NPT Review Conference to demonstrate it. What benefits to the nonproliferation regime can we expect to come from the particular reductions embodied in the New START that have not come from the previous 40 years of U.S. nuclear reductions?

Secretary CLINTON. U.S.-Russian, and the earlier U.S.-Soviet strategic arms control agreements, provide a clear demonstration of our commitment to fulfilling our obligations under Article VI of the NPT. The commitment of the nuclear weapons states to pursue effective measures relating to disarmament is part of the basic bargain inherent in the NPT, i.e., that the nuclear weapons states would commit to move to nuclear disarmament and the non-nuclear weapons states would commit not to pursue nuclear weapons capability. Ratification of New START provides demonstrable proof of our continuing commitment to that bargain. Failure to ratify

New START would call into question our commitment to leadership of the nonproliferation regime, and could undermine support for the nonproliferation regime.

RUSSIA'S SUPPORT FOR IRAN

155. Senator THUNE. Secretary Clinton, during the hearing you explained Russia's continued support to Iran's nuclear reactor program at Bushehr by asserting that Iran is "entitled to civil, peaceful nuclear energy." Whatever that right to peaceful nuclear energy may be, surely it is not an unqualified right. The NPT makes clear that the right to peaceful nuclear energy must be exercised "in conformity with" the nonproliferation obligations of the NPT. Since Iran is in violation of these requirements, it is obviously detrimental to international security for Russia to continue its nuclear cooperation with Iran while Iran remains in non-compliance with United Nations Security Council resolutions. Before the Senate gives its consent to the New START, please certify that either Russia has ceased nuclear cooperation with Iran or Iran has come into compliance with its nonproliferation obligations.

Secretary CLINTON. Russia shares U.S. concerns regarding Iran's nuclear and missile programs. To that end, Russia has supported all six United Nations Security Council resolutions on this subject, four of which imposed sanctions on Iran. The United States and Russia stand firmly with the rest of the international community in supporting the development of peaceful, safe, safeguarded nuclear power, including for the benefit of the Iranian people. Both former-President George W. Bush and President Obama have confirmed that the United States recognizes and supports the exercise of that right, and that responsibilities to ensure compliance with NPT obligations are inextricably tied with those rights. Russia's arrangement to supply nuclear fuel for the entire period of Bushehr's operation under IAEA safeguards continues to be a keystone in our statements that Iran does not need to enrich uranium indigenously.

U.N. Security Council Resolution (UNSCR) 1737 (2006) exempted assistance and fuel for Iranian light water reactors, such as Bushehr, from being included in the list of prohibited actions/items. Following lengthy negotiations with Iran, Russia secured very important nonproliferation measures in the Russia-Iran agreement, namely just-in-time fuel delivery and spent fuel take-back. Russia has made clear to Iran that IAEA safeguards are a requisite part of reactor operation. These measures have gone a long way in satisfying the immediate nonproliferation concerns we would have had with the plutonium in spent fuel rods from Bushehr's reactor.

MISSILE DEFENSE

156. Senator THUNE. Secretary Clinton, in your opening statement, you were adamant that the limitation on missile defense contained in Article V of the New START is not a constraint on the United States system because we "had no intention" of converting offensive launchers for missile defense interceptor use in the future. You went so far as to say we could have had a long list of things in the treaty we weren't going to do, to include that "we're not going to launch [missile defense interceptors] from . . . a cow." If the Article V limitation is in the treaty at the insistence of Russia, what did we get in return for that concession?

Secretary CLINTON. Paragraph 3 of Article V of the treaty prohibits the conversion of ICBM or SLBM launchers to serve as launchers for missile defense interceptors and the conversion of missile defense interceptor launchers to launch ICBMs or SLBMs. The paragraph also "grandfathers" the five former ICBM silos at Vandenberg Air Force Base, California that were converted to house and launch the Ground Based Interceptors (GBI) several years ago.

As stated in the Article-by-Article Analysis of the treaty, this statement has the effect of ensuring that the paragraph's prohibition does not apply to the five converted former ICBM launchers at Vandenberg. It also resolves a long-standing ambiguity that arose during implementation of the START treaty. Specifically, it ensures that these five previously converted ICBM silo launchers at Vandenberg Air Force Base that now are used for missile defense interceptors will not be a continuing subject of dispute with Russia and will not count against the New START treaty's limit on nondeployed ICBM and SLBM launchers and heavy bombers equipped for nuclear armaments.

This provision will have no operational impact on U.S. missile defense efforts. As Lieutenant General O'Reilly has testified, the Missile Defense Agency has never had any plans to convert additional ICBM silos to missile defense interceptor launchers. Doing so would be much more expensive than building smaller GBI silos from

scratch. Moreover, as Lieutenant General O'Reilly has also stated, newly-built GBI silos are easier both to protect and maintain.

In regard to the conversion of SLBM launchers into missile defense interceptor launchers, as Lieutenant General O'Reilly stated in his testimony, the Missile Defense Agency had examined earlier the concept of launching missile defense interceptors from submarines and found it an operationally unattractive and extremely expensive option. He added that the United States already has a very good and significantly growing capability for sea-based missile defense on Aegis-capable ships, which are not constrained by the New START treaty.

Lieutenant General O'Reilly also noted that the New START treaty offers certain advantages for development of the U.S. BMD system: "Relative to the recently expired START treaty, the New START treaty actually reduces constraints on the development of the missile defense program. Unless they have New START accountable first stages (which we do not plan to use), our targets will no longer be subject to START constraints, which limited our use of air-to-surface and waterborne launches of targets which are essential for the cost-effective testing of missile defense interceptors against MRBM and IRBM targets in the Pacific area. In addition, under New START, we will no longer be limited to five space launch facilities for target launches."

157. Senator THUNE. Secretary Clinton, why didn't we get a statement in the treaty text on an issue of equal importance to us, such as at least some reference to the myriad of issues raised by Russia's massive numerical superiority in tactical nuclear weapons, which should be as concerning to us as stopping our missile defense deployments is to Russia?

Secretary CLINTON. From the outset, the New START treaty was intended to replace the START treaty, which was about strategic offensive forces. The desire to conclude the New START treaty quickly in light of the START treaty's pending expiration, combined with the need to consult closely with our allies before addressing tactical nuclear weapons, did not support broadening the scope of the New START treaty to address tactical nuclear weapons. Deferring negotiations on tactical nuclear weapons until after a START successor agreement had been concluded was also the recommendation of the Perry-Schlesinger Congressional Strategic Posture Commission.

158. Senator THUNE. Secretary Clinton, at the hearing you compared the Russian unilateral statement on missile defense to its previous unilateral statement with START, but our unilateral statement in response this time was very different. In START, as you know, Russia issued a unilateral statement saying U.S. withdrawal from or breach of the ABM Treaty would constitute grounds for withdrawal from START. We issued a unilateral statement in conjunction saying, "the full exercise of the United States of its legal rights under the ABM Treaty . . . would not constitute a basis for such withdrawal." This time, on the other hand, we issued a feckless unilateral statement saying that we plan to continue to develop our missile defense system to defend against limited attack. Since we lawfully withdrew from the ABM Treaty, why didn't we challenge the Russian unilateral statement, saying there are absolutely no circumstances under which the development of our missile defense systems constitutes adequate grounds for Russian withdrawal from the New START, similar to our START unilateral statement?

Secretary CLINTON. The Russian unilateral statement does not change the legal rights or obligations of the Parties under the treaty and is not legally binding. The United States did not agree to Russia's unilateral statement. The United States will continue its missile defense programs and policies, as outlined in the BMD Review. Russia's unilateral statement has not changed our course, as laid out in the Review, nor will it.

The New START treaty, as with many other arms control treaties, allows a party to withdraw from the treaty if that party decides that its supreme interests are jeopardized by extraordinary events related to the subject matter of the treaty.

The unilateral statement made by the Russian Federation merely reflects its current position that the "extraordinary events" that could justify Russia's withdrawal from the treaty include a build-up in the missile defense system capabilities by the United States that would give rise to a threat to the Russian strategic nuclear force potential. We have continuously assured Russia, however, that the U.S. BMD System is neither designed nor intended to threaten the strategic balance with Russia.

President Medvedev explained the Russian view regarding the significance of the Russian unilateral statement during a television interview in April 2010 in which he said: "That does not mean that if the USA starts developing missile defense the treaty would automatically be invalidated, but it does create an additional argument

that binds us and that makes it possible for us to raise the question of whether quantitative change to missile defense systems would affect the fundamental circumstances underlying the treaty. If we see that developments do indeed represent a fundamental change in circumstances, we would have to raise the issue with our American partners. But I would not want to create the impression that any changes would be construed as grounds for suspending a treaty that we have only just signed." (Emphasis added)

STRATEGIC OFFENSIVE AND DEFENSIVE ARMS

159. Senator THUNE. Secretary Clinton, the New START preamble recognizes: (1) the existence of the interrelationship between strategic offensive arms and strategic defensive arms; (2) that this interrelationship will become more important as strategic nuclear arms are reduced; and (3) that current strategic defensive arms do not undermine the viability and effectiveness of the strategic offensive arms of the Parties. Why is the third clause in the preamble?

Secretary CLINTON. The treaty's preamble records the shared view of the United States and Russia that "current strategic defensive arms do not undermine the viability and effectiveness of the strategic offensive arms of the Parties." This preambular statement indicates that Russia is not concerned that existing U.S. BMD programs and other U.S. strategic defensive programs such as those for the air defense of the U.S. homeland pose any threat to the survivability and effectiveness of the Russian strategic deterrent. This statement in the preamble does not establish any legally binding obligations and creates no constraints regarding future U.S. strategic defense programs, including those for any form of missile defense.

Russia has expressed concerns that future U.S. BMD capabilities could eventually be a threat to Russia's strategic nuclear deterrent. There is no prospect of this occurring within the timeframe of the New START treaty. In an effort to make this clear to the Russians, we have provided, and will continue to provide, policy and technical explanations regarding why U.S. BMD capabilities such as the European-based Phased Adaptive Approach will not undermine Russia's strategic nuclear deterrent. The United States has also offered to provide transparency and confidence-building measures to demonstrate that existing and planned U.S. BMD programs are not directed against Russia and do not threaten Russia's strategic deterrent.

160. Senator THUNE. Secretary Clinton, is the third clause of the preamble at our insistence or the Russian's?

Secretary CLINTON. See answer to question #159.

161. Senator THUNE. Secretary Clinton, presuming we acceded to the inclusion of the third clause at the insistence of the Russians, what did we get in return for that major concession?

Secretary CLINTON. See answer to question #159.

162. Senator THUNE. Secretary Clinton, what does "current" mean in the third clause of the preamble?

Secretary CLINTON. See answer to question #159.

163. Senator THUNE. Secretary Clinton, does "current" in the third clause allow for the deployment of any land-, sea-, or space-based interceptor system the United States may one day choose?

Secretary CLINTON. See answer to question #159.

164. Senator THUNE. Secretary Clinton, as we build up our missile defense system through all four phases of President Obama's phased adaptive approach, do you know if there is a potential for the Russians to consider this build-up grounds for withdrawal from the New START?

Secretary CLINTON. The New START treaty, as with other arms control treaties, allows a party to withdraw from the treaty if that party decides that its supreme interests are jeopardized by extraordinary events related to the subject matter of the treaty.

Each party must determine, based on its own criteria, when its "supreme interests" have been jeopardized to the point that it believes it must withdraw from the treaty.

With respect to the New START treaty, the Russian Federation has provided a unilateral, non-legally binding statement that reflects Russia's current position that a buildup in missile defense capabilities by the United States that threatens the

Russian strategic nuclear forces potential could be one such basis for withdrawal from the treaty.

To address Russia's concerns, the United States has provided, and will continue to provide, policy and technical explanations regarding why U.S. BMD capabilities such as the European-based Phased Adaptive Approach will not undermine Russia's strategic nuclear deterrent.

Historically, the Russian Federation did not withdraw from the START treaty when the United States withdrew from the ABM Treaty in 2002.

BILATERAL PRESIDENTIAL COMMISSION

165. Senator THUNE. Secretary Clinton, at the July 2009 summit between Presidents Obama and Medvedev, the two presidents agreed to create a bilateral presidential commission with a working group on arms control and international security issues. The working group was to be co-chaired by Sergei Ryabkov, Russian Deputy Minister of Foreign Affairs, and Ellen Tauscher, U.S. Under Secretary of State for Arms Control and International Security Affairs. Please provide details on the discussions in this forum involving missile defense.

Secretary CLINTON. Within the Arms Control and International Security Working Group, the Obama administration has provided briefings to, and discussed U.S. missile defense (BMD) policy, plans, and programs with the Russian government. In addition to covering U.S. programs, we have used this diplomatic channel to discuss the mutual benefits of BMD cooperation, BMD confidence-building and transparency measures, and proposals to exchange data on a limited number of launches of ballistic missiles and space launch vehicles obtained from United States and Russian early warning systems. Such briefings and discussions are also part of the administration's efforts to explain why U.S. missile defenses do not pose a threat to Russia's strategic deterrent.

PROMPT GLOBAL STRIKE

166. Senator THUNE. Secretary Gates, President Obama asserted in his NPR that the United States could deter potential adversaries and reassure allies with a "reduced reliance on nuclear weapons," partially due to "unrivaled U.S. conventional military capabilities." Conventional prompt global strike capabilities are obviously part of U.S. conventional military capabilities. DOS points out those long-range conventional ballistic missiles would count toward the New START delivery vehicle limit, and conventional warheads on those missiles would count against the warhead limit. The NPR further notes that DOD is exploring a range of technologies in developing conventional military capability, some of which would not be accountable under the New START, such as hypersonics. Please provide an overview of current work at DOD on developing and deploying long-range conventional ballistic missiles.

Secretary GATES. Conventional prompt global strike (CPGS) concepts funded in the fiscal year 2010 President's Defense Budget request ($165.6 million) focus on the development and demonstration of technologies that could lead to the eventual fielding of a CONUS-based operationally deployed CPGS system. Fiscal year 2010 funding supports technology application flight experiments by DARPA's Hypersonic Technology Vehicle 2, and the Army's Advanced Hypersonic Weapon, and an "operationally-relevant" flight demonstration by the Air Force.

In addition, a study of long-range strike options, including those that would provide CPGS capabilities, is currently underway in the Department of Defense, and will be completed in time to inform the fiscal year 2012 President's budget. No decisions have been made on which, if any, CPGS delivery systems to acquire or when such systems would be fielded. However, based on analysis of alternative options, the Department of Defense has concluded that any deployment of conventional warheads on ICBMs or SLBMs during the 10-year life of this treaty would be limited, and could be accommodated within the aggregate limits of the treaty while sustaining a robust nuclear Triad.

167. Senator THUNE. Secretary Gates, has DOD assessed whether the study of hypersonics is the most efficient use of resources in developing conventional military capability or is it merely to avoid counting toward the central limits in the New START?

Secretary GATES. The Conventional Prompt Global Strike (CPGS) Defense-Wide Account (DWA), established by Congress for the development of promising CPGS technologies, is considering hypersonic technologies. This program was directed by

Congress to be established in 2008, prior to the start of the New START negotiations in 2009.

Conventional strike concepts leveraging hypersonic technologies may offer some advantages over other concepts. For example, such systems would have the advantage that they could "steer around" other countries to avoid over-flight and have flight trajectories distinguishable from an ICBM or SLBM.

A study of long-range strike options, including those that would provide CPGS capabilities, is currently underway in the Department of Defense, and will be completed in time to inform the fiscal year 2012 President's budget. The cost effectiveness of various types of systems, including hypersonics, will be one of the key criteria for evaluation.

168. Senator THUNE. Secretary Gates, what is DOD's current assessment of the viability of these exotic hypersonic technologies, given that the signal from the Falcon Hypersonic Technology Vehicle-2 was lost 9 minutes into the April 22, 2010, Defense Advanced Research Projects Agency test?

Secretary GATES. Preliminary review of technical data indicates the Minotaur IV Lite launch vehicle successfully delivered the Falcon Hypersonic Technology Vehicle-2 (HTV–2) to the desired separation conditions. The launch vehicle executed first of its kind energy management maneuvers, clamshell payload fairing release, and HTV–2 deployment. Three test ranges, six sea-based and two airborne telemetry collection assets were employed and operational on the day of launch. Approximately 9 minutes into the mission, telemetry assets experienced a loss of signal from the HTV–2. An engineering review board is reviewing available data to understand this anomaly. Technical data collected during the flight will provide insight into the hypersonic flight characteristics of the HTV–2, and be applicable to other hypersonic glide concepts.

LAND-BASED ICBMS

169. Senator THUNE. Admiral Mullen, the President announced in his NPR that he would move to de-MIRV all our land-based ICBMs. Are you concerned that the New START does not prevent Russia from shifting its force structure to large numbers of land-based MIRVs?

Admiral MULLEN. The New START treaty does not include limitations on the number of warheads emplaced on ICBMs because the Parties sought to maintain flexibility by allowing each party to determine for itself how to structure its strategic nuclear forces within the treaty's limits. It preserves our ability to hedge against technical and geopolitical developments while reducing U.S. and Russian strategic forces. Within the New START treaty central limits there are no specific obligations, prohibitions, or restrictions on the composition of the force structure. For instance, the treaty does not limit the development of new types of missiles and there are no constraints upon the technical characteristics of new missiles such as their launch weight or throw-weight.

Russian strategic forces configuration in response to New START will not impact U.S. strategic configuration. The configuration of U.S. strategic forces in the Triad, and the administration's continuing commitment to maintaining U.S. forces in the Triad structure under New START, maintains strategic deterrence and stability, strengthens regional deterrence, reassures U.S. allies and partners, and sustains a safe, secure, and effective nuclear arsenal. NPR analysis focused on retaining sufficient force structure in each leg of the Triad to allow the ability to hedge effectively by shifting weight from one Triad leg to another if necessary due to unexpected technological or operational problems.

QUESTIONS SUBMITTED BY SENATOR DAVID VITTER

TACTICAL NUCLEAR WEAPONS

170. Senator VITTER. Secretary Clinton, have any of our allies expressed any concerns to you or DOS about the New START and its failure to address tactical nuclear weapons?

Secretary CLINTON. No. Allies have not expressed concerns with New START. To the contrary, the response from our Allies to the conclusion of the New START treaty has been overwhelmingly positive, with many seeing it as an important step forward in global nonproliferation efforts. For example, on behalf of NATO Allies, NATO Secretary General Anders Fogh Rasmussen welcomed the agreement as an important contribution to arms control and an inspiration for further progress.

With regard to tactical/non-strategic nuclear weapons, during consultations throughout the development of the 2010 NPR and since its release and the signing of New START, Allies have told us they are comfortable with our planned nuclear force posture, which is consistent with NPR recommendations and the New START treaty. More recently, at Tallinn in their initial discussions on the role of nuclear weapons in NATO, Allied foreign ministers welcomed the principle of including non-strategic nuclear weapons in any future U.S.-Russian arms control talks.

171. Senator VITTER. Secretary Clinton, why was the issue of tactical nuclear weapons not addressed in the New START?

Secretary CLINTON. From the outset, the New START treaty was intended to replace the START treaty, which was about strategic offensive forces. The desire to conclude the New START treaty quickly in light of the pending expiration of the START treaty, combined with the need to consult closely with our allies before addressing tactical nuclear weapons, did not support broadening the scope of the New START treaty to address tactical nuclear weapons. Deferring negotiations on tactical nuclear weapons until after a START successor agreement had been concluded was also the recommendation of the Perry-Schlesinger Congressional Strategic Posture Commission.

NUCLEAR PARITY

172. Senator VITTER. Secretary Gates, do you believe that the reductions in the New START will incite other nuclear nations to increase their arsenals to attempt to achieve parity with the United States or Russia?

Secretary GATES. No. The only nation that could potentially compete with the United States or Russia in size of its nuclear weapons arsenal is the People's Republic of China. The New START limits will permit the United States to maintain forces well above China's. Chinese spokesmen have stated that China does not seek to attain numerical parity with Russia or the United States, and its nuclear arsenal remains much smaller than the U.S. and Russian arsenals. As a declared nuclear weapon state under the NPT, China's restraint in its nuclear modernization is important to nuclear disarmament and global nonproliferation efforts. We look to China to be more transparent about its strategic programs and to show restraint in them.

[Whereupon, at 11:50 a.m., the committee adjourned.]

SUSTAINING NUCLEAR WEAPONS UNDER THE NEW STRATEGIC ARMS REDUCTION TREATY

THURSDAY, JULY 15, 2010

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met, pursuant to notice, at 9:38 a.m. in room SD–106, Dirksen Senate Office Building, Senator Carl Levin (chairman) presiding.

Committee members present: Senators Levin, Lieberman, Reed, E. Benjamin Nelson, Udall, Hagan, Burris, Bingaman, McCain, Inhofe, Sessions, Chambliss, Thune, Brown, and Collins.

Committee staff members present: Richard D. DeBobes, staff director; and Leah C. Brewer, nominations and hearings clerk.

Majority staff members present: Madelyn R. Creedon, counsel; and Peter K. Levine, general counsel.

Minority staff members present: Joseph W. Bowab, Republican staff director; and Daniel A. Lerner, professional staff member.

Staff assistants present: Paul J. Hubbard, Jennifer R. Knowles, and Hannah I. Lloyd.

Committee members' assistants present: Christopher Griffin, assistant to Senator Lieberman; Nick Ikeda, assistant to Senator Akaka; Ann Premer, assistant to Senator Ben Nelson; Jennifer Barrett, assistant to Senator Udall; Roger Pena, assistant to Senator Hagan; Nathan Davern, assistant to Senator Burris; Jonathan Epstein, assistant to Senator Bingaman; Anthony Lazarski, assistant to Senator Inhofe; Lenwood Landrum and Sandra Luff, assistants to Senator Sessions; Clyde A. Taylor IV, assistant to Senator Chambliss; Jason Van Beek, assistant to Senator Thune; Scott Clendaniel, assistant to Senator Brown; Brooks Tucker, assistant to Senator Burr; and Ryan Kaldahl, assistant to Senator Collins.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Chairman LEVIN. Good morning, everybody, and a very warm welcome to our witnesses. This morning we are going to explore the impact of the New Strategic Arms Reduction Treaty (START) on the Nuclear Weapons Life Extension Program (LEP) and the ability to maintain a safe, secure, and reliable, albeit smaller, stockpile of nuclear weapons.

We have with us this morning four distinguished witnesses: Dr. Roy Schwitters, the S.W. Richardson Professor of Physics at the University of Texas-Austin, and the Chairman of the JASON Life Extension Study Panel; Dr. Michael Anastasio, the Director of the Los Alamos National Laboratory (LANL); Dr. George Miller, the

Director of the Lawrence Livermore National Laboratory (LLNL); and Dr. Paul Hommert, the Director of Sandia National Laboratories (SNL).

JASON is an independent group of renowned technical experts who perform studies for the Department of Defense (DOD), the National Nuclear Security Administration (NNSA), and the Intelligence Community (IC). The three national labs support the NNSA in maintaining the nuclear stockpile and working to prevent the proliferation of nuclear weapons and technology. The labs also conduct a broad range of research and development activities for DOD and the Department of Energy (DOE), as well as for a variety of other Federal Government agencies.

The national laboratories are responsible for providing technical management of the nuclear weapons stockpile. In order to ensure that the stockpile remains safe, secure, and reliable in the future, the laboratories must fully understand the status of the thousands of parts and components in nuclear weapons and recommend how these parts and components should be maintained.

The LEP was established to maintain the nuclear stockpile. Under the LEP, there are three options to deal with maintaining the weapons. Nuclear components can be replaced with rebuilt parts similar to those being replaced; this is called refurbishment. Nuclear components can be replaced with parts from other weapons; this is called reuse. Or nuclear components can be replaced with newly designed nuclear components, and this is called replacement.

We will talk more today about these three Rs: refurbishment, reuse, or replacement. Today we'll also explore how the labs go about understanding the status and reliability of the nuclear weapons and making technical recommendations to sustain them.

Beginning in the early 1990s, DOE has made significant investments in experimental tools and facilities and led the world in developing computational capability in order to sustain nuclear weapons without underground nuclear testing. This 18-year experience has provided the laboratories with the technical knowledge to be able to have confidence with the right support from the administration and Congress to maintain the nuclear stockpile in a safe, secure, and reliable status for the foreseeable future.

Under the New START treaty, the number of deployed nuclear weapons will be reduced, which will also result in a smaller overall stockpile. The ability to confidently maintain a smaller stockpile is an important underpinning of the New START. With the increased funding in the fiscal year 2011 budget request and long-term support for the labs, maintaining the stockpile should be achievable.

I look forward to discussing with our witnesses the challenges associated with maintaining a nuclear stockpile that is safe, secure, and reliable and what is needed, in their judgment, to ensure the Nuclear Weapons LEP is a success.

Now, we're going to begin this hearing in open session and then we will move to a closed session in room SVC–217 of the Capitol Visitor Center. I understand that there's a vote at 11 o'clock, so it's perhaps possible that we can complete the open session by 11 o'clock or shortly thereafter. If not, we will come back here to complete it.

Senator McCain.

STATEMENT OF SENATOR JOHN McCAIN

Senator MCCAIN. Thank you, Mr. Chairman, and I thank our distinguished witnesses for joining us today and the outstanding work that they do.

The purpose of this hearing, as the chairman mentioned, is to discuss the New START treaty and evaluate the current and long-term ability of the national nuclear security laboratories to sustain the nuclear weapons stockpile. Given the many years of neglect, the weapons complex is in dire need of investment in both its intellectual and physical infrastructure. This investment is critical and long overdue, and without it further reductions to the stockpile could significantly undermine the effectiveness of our strategic deterrent.

Our strategic posture, how we design, manufacture, field, and evaluate the nuclear arsenal, becomes increasingly important as we reduce the size of our stockpile. If ratification of the New START treaty is to serve rather than undermine our national security, we need adequate resources and a consistent long-term commitment to modernize the weapons complex, address its crumbling infrastructure, and stem its impending brain drain.

At the request of Congress, the administration provided an $80 billion, 10-year plan for modernizing the nuclear weapons complex. However, the plan raises questions as to its adequacy for meeting our full recapitalization and missile modernization needs. Of the administration's commitment to provide $80 billion over the next 10 years, more than $70 billion of it represents funding needed simply to sustain the nuclear weapons complex at today's capability.

Assuming that out-year budgets will continue to support full funding of the 10-year modernization plan, about $1 billion per year is allocated for modernization needs, hardly what many would consider a meaningful or robust reinvestment. I understand that prior to the release of the fiscal year 2011 budget the national lab directors reportedly requested a significantly greater investment than what the administration ultimately proposed.

I look forward to hearing from our witnesses why they felt more was needed, if they perceive potential funding shortfalls, and how they believe the forthcoming budget request will address, among other issues, our critical physical and intellectual infrastructure needs.

During this committee's hearing on the Nuclear Posture Review (NPR), concerns were raised about the administration's decision to discourage LEPs involving the replacement of warheads. Counter to the recommendations of the bipartisan Perry-Schlesinger Strategic Posture Commission, the NPR seems to undermine a pragmatic approach to the life extension of our weapons, while threatening our ability to recruit the best and brightest next generation of talent.

All modernization options that are achievable without testing or the establishment of a new military characteristic—including replacement, which in some cases may be the best option, should be encouraged and pursued. As General Kevin Chilton, Commander of

U.S. Strategic Command (STRATCOM), told the House Armed Services Committee in March: "We should not constrain our engineers and scientists in developing options on what it will take to achieve the objectives of the stockpile management program, and let them bring forward their best recommendations for both the President and Congress to assess as to what is the best way forward."

I'd be very interested to hear from our lab directors whether a policy that encourages refurbishment and reuse over replacement could be detrimental to our ability to provide the safest, most secure, and most reliable deterrent.

I've been a supporter of previous bipartisan efforts to reduce our nuclear weapons in step with the Russian Government. Many of us have concerns about the New START treaty's methods of verification, its constraints on ballistic missile defense, and the accompanying plan for modernization of our nuclear stockpile. It's my hope that over the course of our hearings and through further dialogue and negotiation with the administration, Congress will receive both the assurances and the funding commitment to address these concerns.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator McCain.

Dr. Schwitters, we're going to begin with you.

STATEMENT OF HON. ROY F. SCHWITTERS, PH.D., CHAIRMAN, JASON DEFENSE ADVISORY GROUP, AND S.W. RICHARDSON FOUNDATION REGENTAL PROFESSOR OF PHYSICS, UNIVERSITY OF TEXAS AT AUSTIN

Dr. SCHWITTERS. Thank you, Mr. Chairman and Senator McCain. I very much appreciate this opportunity to report to you on the 2009 JASON review of the LEP. I've prepared remarks, which I've presented to the committee. I'll try to summarize those briefly here.

The impetus for our study was a request from the House Subcommittee on Strategic Forces to the NNSA administrator for a technical review of LEP strategies for maintaining the nuclear deterrent analogous to the 2007 study on the Reliable Replacement Warhead (RRW) program which we performed for NNSA.

Chairman LEVIN. Could you tell us what—I think we know what your acronyms mean, but—

Dr. SCHWITTERS. Yes, sir.

Chairman LEVIN.—"LEP" is the Life Extension Program.

Dr. SCHWITTERS. "LEP" is the Life Extension Program, and your introductory remarks are a very good summary of the detailed work that goes into that program.

Chairman LEVIN. That last acronym that you used?

Dr. SCHWITTERS. The last acronym is "RRW" and that indicated Reliable Replacement Warhead, which was another important concept that was considered for securing the stockpile.

Chairman LEVIN. Thank you.

Dr. SCHWITTERS. With respect to RRW, a concern has always been, of course, the maintenance of an aging stockpile, no question about that. That's where we come in and work with the labs to understand the technical details of this.

An important question that was brought to us immediately in last year's study of LEPs was the question of the build-up of aging effects and how they affect the security and reliability of the stockpile. The first finding in the study was that there is no evidence that accumulation of changes incurred from aging and life extension activities have increased risk to certification of today's deployed nuclear warheads. We can go into detail on the meaning of that.

The second finding is that the lifetimes of today's nuclear warheads could be extended for decades with no anticipated loss in confidence by using approaches similar to those employed in LEPs to date. Now, this is an important point and I want to explain the basis for it. The reason that we find confidence in the ability to extend the lifetimes of the current stockpile is based on the tremendous investment that the country has made in science-based stockpile stewardship since the end of the Cold War.

When we say methods similar to what has been done in the past, we're talking about the science, the new tools, the new computing capabilities, the experimental facilities, and the detailed work by the folks in the laboratories that have given us the present confidence we have. This is an important investment, and I think the message, if you will, the lesson that we've seen in the LEP, life extensions, to date is the fact that the system—the full power of these people and tools—has learned a lot about the current stockpile that we didn't know entirely before and are able to apply it in excellent ways to provide the stockpile that we need.

Our study followed on a series of studies for the past several years on technical aspects of the nuclear weapons program. I want to just point out that JASON, of course, relies on the laboratories for information. We probe their people, look at the experiments, try to consider the results from a technical point of view.

I want to acknowledge, first of all, that our group finds the work to be excellent in quality and we have had total cooperation as we explore these details. Their folks come down to our briefing sessions and get quite an onslaught of questions, and we just assure them that we treat ourselves just as tough as we treated them in this process. So it's really, for me personally, an exciting and important give-and-take of the highest scientific caliber.

Now, you mentioned, Mr. Chairman, in your opening remarks the three Rs. We looked in detail at, again, the technical differences and whether special issues come up depending on whether you're refurbishing a system, replacing systems, or reusing systems in different ways in the stockpile. I think the lesson we found is that, while this terminology is useful, that in fact the history of LEPs to date is such that good, sensible applications of all three Rs go into the LEPs that have already successfully been completed.

For example, the ongoing LEP on a system called the W76 is mainly of the refurbishment type. It includes, in my view and the view of our group, very sensible cases where some components have been rebuilt and replaced with new technologies. So we've seen the ability of the enterprise to understand issues that come up in an aging stockpile and to manage surprises in the system that you inevitably find in complex technical systems like these. The LEPs

performed to date have been excellent, but don't really strictly map onto one of three Rs.

The key in our view for the technical validation of these ideas, however, is strongly dependent on the process—which is going on—of reviewing any proposed changes, be they refurbishment, the reuse, or the replacement, against a very strict set of technical guidelines relating: (1) to the original nuclear underground test database; (2) and this is so important—to our better and new understanding of how these systems work; and (3) to a host of nonnuclear experiments which can be carried out to greater or lesser degrees depending on the particular systems.

In our study, rather than sticking with the sort of generalities of the three Rs, we went in detail, case-by-case, of the systems that have been examined and those soon to go into LEP to reach our conclusions.

Let me emphasize one technical point in this that I'd like to make, and then I'll tell you a little bit about our recommendations. In making stockpile assessments, it's always important to compare the estimated value of a performance margin with the corresponding uncertainty. In a system as complicated as a nuclear weapon there are several margins that matter a lot. However, it's important to recognize that margin by itself is not all that you need to know. This is the great advance of the science-based stockpile stewardship: that we now have understanding of the uncertainties in the estimation of those performance margins. That's new. That is good news, and at least now, as the program goes forward, and certainly as JASON examines these systems and their changes, we emphasize comparing margin always to uncertainty.

Suppose you start to design a new system, and go down a path quite a ways toward implementation. If the uncertainty in performance grows faster than the margin that you gain, one has to reevaluate the design. This is a very important detail as you get into the nitty-gritty on these systems.

Let me just close with a brief comment on our first two recommendations. The first is: determine the full potential of refurbishment, as exemplified by the LEPs executed to date. This recommendation is possible largely because of the investment and the knowledge we have of those systems.

The second and related recommendation is to quantify the potential benefits and challenges to life extension strategies that may require reuse and replacement to prepare for the possibility of future requirements, as for example reduced yield or enhanced surety systems. Our proposed strategy we believe is, first of all, not a refurbishment-only strategy; it is a prudent strategy where we try to leverage the knowledge gained in these complex systems against the changing needs of the stockpile. That was the basis for those recommendations.

I think with that I should stop and I'd be more than pleased to answer your questions. Thank you.

[The prepared statement of Dr. Schwitters follows:]

PREPARED STATEMENT BY DR. ROY SCHWITTERS

Mr. Chairman and members of the committee:

I appreciate this opportunity to discuss with you the findings and recommendations of the 2009 JASON report on the NNSA Lifetime Extension Program (LEP).

The impetus for our study was a request from the House Subcommittee on Strategic Forces to the NNSA Administrator for a technical review of LEP strategies for maintaining the U.S. nuclear deterrent "analogous to" the 2007 JASON review of the Reliable Replacement Warhead (RRW) program.

In brief, our study found (and I quote): "no evidence that accumulation of changes incurred from aging and LEPs have increased risk to certification of today's deployed nuclear warheads" and that "lifetimes of today's nuclear warheads could be extended for decades, with no anticipated loss in confidence, by using approaches similar to those employed in LEPs to date."

Our main conclusion that the aging U.S. nuclear weapons stockpile can be maintained through LEPs without explosive nuclear testing fundamentally depends on the knowledge and experience gained from our Nation's substantial post-Cold War investment in science-based stockpile stewardship, notably through advanced simulation tools, major new experimental facilities, the discipline of quantification of margins and uncertainties (QMU), and excellent work by scientists and engineers in the nuclear weapons program. But the future credibility of our nuclear deterrent faces technical risks and challenges, which we address in the report.

As mentioned, the LEP study followed on our review of the RRW, which was part of a series of JASON studies going back several years sponsored by NNSA that also included assessments of pit lifetimes, verification and validation of nuclear weapons simulation codes, and the physics of boost. In all of these studies, members of JASON were provided excellent cooperation and access to laboratory technical expertise on a continuing basis.

NNSA specified its definitions of "refurbishment," "warhead component reuse," and "warhead replacement" in the study charge. We consider this terminology to be convenient shorthand for the type of LEP under consideration, but it is not indicative of the certification challenges facing life-extension of any particular weapon type—it implicitly assumes a clear distinction exists between the options, where, in fact, the reality is more complicated. For example, the currently ongoing W76–1 LEP mainly involves component refurbishment, but includes significant component reuse and replacement.

In any specific LEP, it is critical to assess each modification to the warhead on the basis of its effect on our confidence to certify the modified weapon for deployment without benefit of underground explosive tests in accord with U.S. national policy. The benchmarks for assessing proposed modifications are:

- Existence of data from previous underground tests (UGT) or non-nuclear performance trials, which can be compared to predicted performance characteristics of the modified system. We used these criteria to assess certification challenges of past ongoing and planned LEPs on a case-by-case basis for all current stockpile systems,
- Scientific understanding of relevant phenomena, which provides guidance for comparing predictions with experiment and for estimating uncertainties,
- Results of non-nuclear experiments, which assist in validating nuclear simulations, improving scientific understanding, and qualifying non-nuclear systems.

We used these criteria to assess certification challenges of past, ongoing, and planned LEPs on a case-by-case basis for all current stockpile systems.

Considerable attention was given to assessing risk that might be associated with "accumulation of changes" during the lifetime of a warhead. We identify four types of changes that can take place following the underground tests of a currently stockpiled weapon: (1) component aging, (2) differences between tested devices and stockpile warheads, including the differences introduced at the time of manufacture and differences introduced when LEPs (and ALTs) were performed, (3) variations among production units, and (4) changes in understanding of actual performance characteristics compared to original design expectations. The different categories of changes call for different responses.

In making stockpile assessments, it is important to compare the estimated value of the performance margin (M) to its associated uncertainty (U) through the ratio M/U; short of a predictive theory of weapons performance, a particular value of M without reference to U is not meaningful. Indeed, comparing M to U is the essence of what is meant by QMU and forms the basis of our (understated) finding: Quantification of Margins and Uncertainties (QMU) provides a suitable framework for assessment and certification. Producing new weapons systems with increased margin is a possible mitigation strategy should M/U fall below levels considered adequate as long as the corresponding uncertainty doesn't grow in equal or greater proportion. These considerations—documented in our report—support our first two findings I stated at the outset.

Our first two recommendations are:

- Determine the full potential of refurbishment, as exemplified by LEPs executed to date, for maintaining or improving the legacy stockpile.
- Quantify potential benefits and challenges of LEP strategies that may require reuse and replacement, to prepare for the possibility of future requirements such as reduced yield or enhanced surety.

This proposed LEP strategy seeks to leverage to the extent possible the investments already made in the program, especially in the knowledge of and experience with certifying weapons already in the stockpile.

There is broad agreement across the nuclear weapons community, JASON, and various review bodies that stockpile surveillance and retention/renewal of key science, technology, engineering, and production facilities and manpower are areas of critical importance to stockpile stewardship needing attention now. Secretary Chu testified to this committee on June 17 that "the New START treaty contains no limitations that would constrain our warhead life extension program options, or the work to assess and correct any potential future warhead issue." This commitment to future science-based stockpile stewardship is critical to maintaining confidence in our nuclear deterrent.

I would like to comment on reactions to our LEP report and its executive summary, which was released publicly by NNSA in November 2009. The classified report details our assessments of the certification challenges associated with LEP strategies for all the systems in the enduring stockpile; the executive summary provides verbatim the complete list of findings and recommendations contained in the classified report. As to comments made by the laboratory directors in letters sent to Ranking Member Turner of the House Subcommittee on Strategic Forces earlier this year, I hope I have made clear that we do not propose a refurbishment-only strategy for future LEPs.

Regarding Director Anastasio's suggested strategy of "preemptively increasing margins," we offer two cautionary observations: (1) many past stockpile issues would not be addressed by additional margin, and (2) uncertainty is just as important as margin in establishing confidence. Director Miller's letter raises the concern over additional risk from "accumulation over time of small changes" for which JASON found no objective evidence, after careful study of the details. We note that: (1) changes induced from component aging can be erased by a LEP, and (2) changes introduced by LEPs are carefully chosen and assessed—they are not random—so that each LEP to date has produced a warhead with higher confidence factors than the original. Former director Hunter correctly points out that the JASON study focused on certification of nuclear components for which full performance testing is not possible; we agree that non-nuclear components can be substituted with greater flexibility as long as they are thoroughly tested.

We were concerned that some of the commentary on our work implied an inconsistency between the classified report and its unclassified executive summary. We discussed these concerns with Administrator D'Agostino in April. Subsequently, NNSA forwarded to its staff and laboratory leadership a statement that concludes:

> "NNSA has reviewed the JASON LEP report including the question of consistency between the unclassified executive summary of the report and the full classified version of the report JASON submitted to us. The two documents are consistent. Both versions support NNSA's commitment to maintaining the safety, security, and reliability of the Nation's nuclear weapons stockpile under the terms of the (Nuclear Posture Review)."

JASON considers it a privilege to have the opportunity to examine important technical aspects of the Nation's nuclear weapons program. A healthy technical give-and-take between knowledgeable people is crucial to the future of science-based stockpile stewardship.

I shall be pleased to answer any questions you have.

BACKGROUND INFORMATION

I am a professor of physics at The University of Texas at Austin and a member of the JASON study group. I have participated in all the recent JASON studies related to stockpile stewardship.

JASON comprises mainly university researchers—scientists and engineers—who conduct studies on technical issues related to national security for agencies of the U.S. Government. Currently, I chair the JASON steering committee and, as such, am the public spokesman for JASON. The steering committee is the executive body of JASON; among other functions, it is responsible for selecting study leaders and approving the terms-and-conditions for all studies.

Professors Marvin Adams of Texas A&M University and Dan Meiron of Caltech led the 2009 LEP study and have briefed the classified report to congressional staff, NNSA staff, interagency officials, and weapons lab scientists and engineers. Three active nuclear weapons scientists from the labs joined us as expert consultants on the LEP study—they provided essential knowledge and insight, but JASON's findings and recommendations are, of course, solely our responsibility.

Chairman LEVIN. Thank you very much, Dr. Schwitters. The Nation owes you and your colleagues at JASON a great debt of gratitude. You are really independent and distinguished and recognized for both of those characteristics. We're grateful to you all.

Dr. SCHWITTERS. Thank you very much.

Chairman LEVIN. Let's continue now with Dr. Anastasio.

STATEMENT OF HON. MICHAEL R. ANASTASIO, PH.D., DIRECTOR, LOS ALAMOS NATIONAL LABORATORY

Dr. ANASTASIO. Thank you, Chairman Levin and Ranking Member McCain and other members of the committee. I appreciate the opportunity to appear before you today. I'm Dr. Michael Anastasio. I'm the director of LANL, and it's a real honor to be here.

I've devoted the bulk of my career to the nuclear weapons enterprise, since 2006 as director at LANL, but originally as a weapons designer at LLNL, before becoming director there in 2002.

In the President's April 2009 Prague speech and the recently released NPR, the administration has directly linked reductions in nuclear weapons to the maintenance of the nuclear arsenal, both supporting its overall goal to reduce the global nuclear danger.

Secretary of Energy Steven Chu testified recently that as the stockpile decreases in size the role of science, technology, and engineering in deterrence will increase in importance. The reductions proposed in New START highlight the importance of the laboratories' mission and the need for a healthy and vibrant science, technology, and engineering base.

There are three points I'd like to emphasize for you today, and you do have my written testimony that goes into more detail. First, the Stockpile Stewardship and Management Program (SSMP) created by Congress in the mid-1990s has had many successes that were by no means assured when we started that program. We've maintained a safe, secure, and effective stockpile for the Nation without resorting to nuclear testing. So far, we have retained the knowledge and critical skills of an outstanding scientific and engineering workforce. We've built many of the tools required for this task in the form of the world's fastest supercomputers and new experimental capabilities such as the Dual Axis Radiographic Hydro-Test, the National Ignition Facility, and the Microsystems and Engineering Sciences Application at our three laboratories.

But we're not finished. Because of the science we have developed, and as Dr. Schwitters pointed out, we now know more about the nuclear weapons systems than we ever have. In particular, we've learned that our systems are aging and almost every one will require some form of life extension activity in the next 25 years. The available mitigation actions are reaching their limits and we have not challenged the full skill set of our workforce. Therefore, I think it's important that we go beyond the refurbishments that have been considered to date as we look to the future.

The second point I'd like to make is that the Obama administration has put in place a new nuclear policy in its NPR and brought forward a fiscal year 2011 budget proposal that calls for significant increase in weapons activity spending. The NPR calls for a case-by-case analysis of the full range of life extension approaches, refurbishment, reuse, and replacement. It also expresses a strong preference for refurbishment or reuse in a decision to proceed to engineering development.

I understand the sensitivity of this issue and we heard this in some of the opening comments. But I do not feel overly constrained by the language in the NPR. Rather, I believe that it provides the necessary flexibility to manage the stockpile with acceptable levels of risk. It is always my obligation to ensure that the best technical recommendations to meet requirements are brought forward for your considerations, regardless of the statements in the NPR.

The fiscal year 2011 budget request, which calls for a $624 million increase, is essential. This is a positive step and a show of commitment that helps stabilize the weapons program. It also puts necessary new funds towards starting some of the needed hands-on work for the stockpile and repairing the decaying infrastructure of the complex.

My third and final point is that, even with these positive actions, I am concerned. This effort will require sustained focus by multiple administrations and multiple Congresses for several decades. I fear that program expectations may already be out of line with the fiscal realities faced by the country.

The nuclear infrastructure needs and the stockpile needs have the potential to unbalance the rest of the program, squeezing out the science that is the basis for stockpile stewardship. In addition, we must balance the need to hire the future national security workforce with looming pension shortfalls of nearly $200 million in fiscal year 2012 at LANL.

So in conclusion, I'm cautiously optimistic about the future of the nuclear weapons program, that we can carry out our responsibilities under New START with adequate levels of risk. But we need help, and I urge Congress to work with the administration to form a national consensus on nuclear policy and to support the fiscal year 2011 budget request as a necessary first step forward. I would welcome a dialogue on how to best sustain focus on these issues well into the future.

Thank you, and of course I'd be happy to answer any questions.

[The prepared statement of Dr. Anastasio follows:]

PREPARED STATEMENT BY DR. MICHAEL R. ANASTASIO

Chairman Levin, Ranking Member McCain, and members of the committee, thank you for the opportunity to appear before you today to respond to the committee's questions on the New START treaty and the ability of the national laboratories to maintain the safety, security, and effectiveness of the stockpile into the future. I am Dr. Michael R. Anastasio, the Director of the Los Alamos National Laboratory (LANL), and it is an honor to appear before you today to present my views.

In President Obama's April 2009 Prague speech and in the recently released Nuclear Posture Review (NPR), this administration has articulated its goal to reduce the global nuclear danger. In both the speech and the policy document, the administration has directly linked reductions in nuclear weapons to the maintenance of the nuclear arsenal. This then is a propitious time to discuss what is necessary to maintain the stockpile into the future as the Senate considers ratification of the New START treaty.

From a Laboratory standpoint, it is important to understand that New START will reduce the number of delivery vehicles and warheads, but it will not alter the Nuclear Triad. Secretary of Energy Steven Chu testified before the Senate Armed Services Committee on June 17, 2010, that "As the stockpile decreases in size, the role of science, technology and engineering in deterrence will increase in importance." This means that the United States will have to devote appropriate attention and resources to protecting the physical and intellectual science, technology and engineering (ST&E) infrastructure that underpins the stockpile.

Los Alamos and the other National Security Laboratories also have historically played an important role in arms control, providing technical support to negotiators, to those who implement treaties, and to those who monitor the treaties and assess compliance. While I will not discuss this further, we continue to bring the innovative technical capabilities of the Laboratory to these challenges.

I do not see New START fundamentally changing the role of the Laboratory. What New START does do, however, is emphasize the importance of the Laboratories' mission and the need for a healthy and vibrant ST&E base to be able to continue to assure the stockpile into the future. These issues will be the focus of my remarks.

STOCKPILE STEWARDSHIP

Stockpile Stewardship Successes

The United States and its allies continue to depend on a nuclear deterrent as part of the overall security posture. The manner in which the Nation executes this mission has changed dramatically over the last several decades. In 1989, the United States ended the production of new nuclear weapons; 3 years later, the United States adopted a moratorium on nuclear weapons testing that remains in effect to this day. In response to these new circumstances, the National Defense Authorization Act for Fiscal Year 1994 charged the Secretary of Energy to establish a Stockpile Stewardship Program (SSP) "to ensure the preservation of the core intellectual and technical competencies of the United States in nuclear weapons." To meet this challenge the Nation has invested significant resources in the advanced scientific, experimental, engineering, and computational capabilities of the national laboratories. These capabilities are the basis for the Laboratories to assess the overall safety, security, and effectiveness of the stockpile as well as to execute the Stockpile Life Extension Program (LEP), which I will describe in more detail below.

It is primarily through the SSP that the Laboratory provides technical support for U.S. nuclear forces, posture and policy. Our approach involves the continual assessment of the stockpile through surveillance enabled by a more fundamental scientific understanding. This has required us to build upon past nuclear test experience with the development of more advanced experimental and simulation tools and the expertise of the scientists, engineers, and technicians at our laboratories and production plants.

Our surveillance results show ever-increasing effects from aging. These results are assessed with an extensive range of non-nuclear testing and vastly improved simulation capability. Ultimately, expert judgment and rigorous inter-laboratory peer review assure that critical conclusions are drawn from the best available data, appropriate high-resolution simulations and a suite of evolving experimental capabilities. Sound science is the core of our confidence.

The SSP at the Laboratories has had many successes to date; these successes were by no means assured when the Program began in 1995 as an ambitious effort to sustain the nuclear weapons stockpile while minimizing the need for nuclear testing. Examples of these successes include:

Annual Assessment

I am responsible for an assessment, based on a rigorous technical process, of all weapons in the stockpile for which the Laboratory is responsible. This "annual assessment" letter is provided to the Secretaries of Defense and Energy, as well as the Chair of the Nuclear Weapons Council, and then is forwarded to the President. I have personally signed eight assessment letters during my tenure at both Lawrence Livermore and now at Los Alamos and have had direct involvement in all 15 cycles since the inception of the program in 1996. In many regards, this letter and its detailed set of backup documents is the annual summation of all that we do in Stockpile Stewardship.

Pit manufacturing

In 1989, the United States halted plutonium pit manufacturing at the Rocky Flats plant in Colorado, leaving the United States as the only nuclear weapons state without the ability to manufacture the core component of nuclear weapons. Using our

science and technology to qualify the new build processes, Los Alamos restored this essential capability in 2007 and has nearly completed the build of pits required for the W–88, a central component of the sea-based deterrent.

Dual Axis Radiographic Hydrodynamic Test

The Dual Axis Radiographic Hydrodynamic Test (DARHT) facility is now fully functional and allows our experimental teams to obtain three-dimensional, high-resolution, time-sequenced images taken within billionths of a second at specifically selected times within an implosion of a mock nuclear weapons assembly. Last December, the first dual-axis experiment was successfully carried out at DARHT. Data from the experiment will allow Los Alamos to close a Significant Finding Investigation (SFI) on a stockpile system. DARHT data is also critical to the W76 LEP effort.

Supercomputing

In partnership with IBM, Los Alamos built and deployed the world's first petascale (million-billion calculations per second) supercomputer—Road Runner. After an initial series of unclassified science runs to assure machine performance, Road Runner is now dedicated to classified weapons work. Later this summer, Los Alamos in partnership with Sandia, will take delivery of out next supercomputer—Cielo—another petascale machine. The breadth and quality of experimental data being obtained has allowed Los Alamos to validate the significant progress on integrated three dimensional software tools within the Advanced Simulation and Computing campaign.

Los Alamos Neutron Science Center

The Los Alamos Neutron Science Center (LANSCE) facility, an 800 MeV proton accelerator, makes a number of important contributions to our understanding of weapons performance. Proton radiography (pRad) at LANSCE allows us to make time-resolved measurements of dynamic events of weapon components, such as high-explosive detonation and burn. Data from pRad informs the W76 LEP and B61 work. The LANSCE protons are also used to create spallation neutrons that allow the imaging of weapons components and are used to understand the basic nuclear physics. The Weapons Neutron Research station at LANSCE provides invaluable new radiochemical data used to refine the nuclear yield determinations, thereby allowing LANL staff to glean additional information from archived nuclear test data. LANSCE is the only facility in the country where these types of classified experiments that involve special nuclear material can currently be conducted.

Plutonium Aging Physics

LANL conducted years of detailed experiments that examined the physics of how plutonium ages. This assessment, paired with work conducted at Lawrence Livermore, enabled the National Nuclear Security Administration (NNSA) to better understand the lifetime of plutonium components and its impacts upon nuclear weapons performance. This work allowed for better estimates of the sizing of production capabilities and of needed resources.

Maintaining the Stockpile through Life Extension Programs

As we learn about our strategic systems through Stockpile Stewardship, we then work with the Department of Defense (DOD) and Department of Energy (DOE)/NNSA to determine appropriate steps for extending the lives of these systems for an additional 20 to 30 years beyond their original lifetimes through LEPs. To date, the LEP focus has been to effectively refurbish them so they are "just like" they were originally designed, to meet the requirements of the Cold War (high yield to weight ratios). LEP activities include: research, development, and production work required to ensure that weapon systems continue to meet national security requirements.

The Nation has successfully completed LEPs for the W87 ICBM warhead and the B61–7/11 gravity bomb. The W76 LEP is well underway and is contributing significantly to the long-term viability of the Nation's sea-based deterrent force. Major components refurbished as part of the LEP include: the nuclear explosive package; the arming, firing, and fuzing system; and the gas transfer system. This LEP is expected to extend the life of the W76 for an additional 30 years without reliance on underground nuclear testing. LANL played a major role in this effort, which required reconstitution of specialized material production after several decades. The First Production Unit (FPU) for the W76 LEP was completed in fiscal year 2008.

With the bulk of the Laboratory's efforts on the W76 LEP complete, Los Alamos will shift its focus to the the B61 LEP, consistent with the NPR. Major components that will be refurbished as part of the LEP include: new detonator cable assembly, main charge, foams and polymers, and a new gas transfer system. This LEP also

provides the opportunity to install enhanced, intrinsic safety and security features by modifying components in existing designs to meet today's dynamic security environment. Los Alamos expects to support an FPU in 2017 assuming timely Congressional approval of the funding needed to carry out the program.

LEP requirements derive from the joint DOD–DOE Nuclear Weapons Council (NWC). Each nuclear weapon system they identify and Congress funds is studied to develop options that meet the requirements established by the NWC. Per the guidance in the NPR and in the administration's Stockpile Stewardship and Management Report, it is my obligation to ensure that the teams at Los Alamos examine all the relevant technical options for an LEP, including refurbishment, reuse and replacement, and bring them forward to the NWC for a decision.

These efforts will include modifying Cold War-era weapons for enhanced margin against failure, increased safety, and improved security and use control. For example, introducing insensitive high explosives into systems that currently use conventional high explosives can improve safety. Future LEP studies will consider the possibility of adapting the resulting warhead to multiple platforms in order to reduce the number of warhead types. In all LEP studies, the Laboratories will rely on fundamental and applied ST&E to improve its understanding of nuclear weapon behavior and to assure the safety, security, and effectiveness of our nuclear deterrent supported by a reduced and more sustainable, efficient and appropriately-sized nuclear security infrastructure.

Leveraging our Science for National Security

The issues that have arisen in the last 18 years of assuring the reliability of nuclear weapons without conducting a nuclear test are complex science and engineering problems. Some of these problems were anticipated—like the aging of certain components in a warhead—and others were totally unexpected. The success of the Stewardship program has been the ability to draw on a deep and rich science base at the Laboratories. This science base is enriched by engaging on a broad range of scientific problems, many of which have a direct relevance to broader national security interests. A vibrant science, technology and engineering enterprise is essential to supporting the stewardship program, and at the same time it provides a powerful resource for issues such as nonproliferation, counterproliferation, counterterrorism, and intelligence assessment.

There is a tendency when people hear about the role the NNSA Laboratories play in solving other national problems that these are simply nice "spinoffs." These provide more than just positive benefits for the Nation; rather, this work outside of the weapons program is essential to the conduct of the core nuclear weapons mission. We have a vibrant scientific workforce at Los Alamos, including around 2,500 PhDs that are the core of our science base. The weapons program benefits directly when these scientists have the opportunity to extend their skills by working on challenging technical problems, like climate modeling, which then can validate and improve the methods in our 3–D weapons codes and solve challenges in the stockpile.

The following are a handful of recent Laboratory scientific successes that leverage our weapons science capabilities for broader national security interests, and also feed directly back into the nuclear weapons program.

Intelligence

Our weapons program capabilities give us the ability to assess foreign weapons programs and to assist the intelligence community. There is much truth to the statement that "it takes a nuclear weapons lab to find a nuclear weapons lab."

Nuclear forensics and attribution

Los Alamos delivered a suite of models and databases for National Technical Nuclear Forensics applications, such as modeling debris signatures and other nuclear security applications. LANL's capabilities in this area are a direct outgrowth of the former nuclear weapons testing program where scientists had to study the detailed chemistry of soil samples to determine various characteristics of a detonation. Our experts in this area can not only help with current nuclear forensics, but they also support the weapons program by helping to re-interpret data from previous underground tests. This information is then used to validate our weapons codes.

Plutonium Center of Excellence

LANL's efforts in non-weapons plutonium work help ensure the country maintains a core human capital ability to work with this material. The same researchers and technicians who work on plutonium 238 for use in deep-space missions for NASA also support the manufacture of plutonium pits for the stockpile.

Detection Technology

Much of the work at Los Alamos in the basic sciences arena has had a significant impact on detecting threats from emerging phenomena. For example, building x-ray and gamma ray detectors on satellites has promoted the discovery of fundamental cosmological phenomena like the collapse of black holes. In turn, these detectors have been refined and are part of our front line defense in monitoring other nations' weapons programs.

Advanced simulation and energy/climate research

The ability to simulate complex systems—like a nuclear explosion with thousands of parts exploding in a fraction of a second—is something that has also driven national security science forward. LANL has developed two of the four modules (sea ice and oceans) used in international climate models. Many of the lessons learned from observing a complex climate system can be applied to our weapons models. In particular, we have discovered heretofore unknown phenomena—in terms of regional climate impacts and within weapons systems—as we have gone to finer and finer levels of resolution in our simulations. On the energy front, LANL is also a partner in the recently announced DOE Office of Nuclear Energy Hub focused on nuclear power. LANL will play a key role in helping to build a "virtual reactor."

Gulf Oil Spill

Scientists from Los Alamos and other laboratories have played a significant role in the Federal Government's efforts to assess and stem the oil leaking in the Gulf of Mexico. Several efforts are continuing as the crisis continues. One particular area of emphasis is in diagnostics of the well system. LANL designed and developed the first ever two-dimensional radiography system deployed in deep water (below a few hundred feet). The radiography leveraged numerous capabilities including machining, advanced image analysis, and modeling techniques.

Next Chapter of Stockpile Stewardship

For the future, we need to build on the core scientific successes achieved through Stockpile Stewardship that have maintained the safety security and effectiveness of the stockpile for 18 years without nuclear testing. However, we are now at a crossroads as a nation. The next few years will determine our approach to the stockpile for decades to come. There is an opportunity right now for a national consensus to develop around nuclear policy that has been needed since the end of the Cold War. As I will discuss further below, I am encouraged by the significant strides this administration has made in issuing a new policy, in the form of the NPR, as well as by its fiscal year 2011 budget request for the Department of Energy, which I believe is an important first step. With this as a basis, I hope that Congress and the administration can reach a bi-partisan national consensus.

Even with such a consensus, my concern is that with all there is to be done, the level of interest and budget support that we have seen this year will need to be sustained by future administrations and future Congresses. As I have seen over my nearly 30-year career at the Laboratories, solutions and fixes in this arena cannot be accomplished quickly. This will require a sustained effort on the part of the Nation for decades to come.

NEW POLICY FOR NUCLEAR WEAPONS

The administration's NPR, issued in April of this year, "provides the roadmap for implementing President Obama's agenda for reducing nuclear risks . . . " It focuses on five key objectives of nuclear weapons policies and posture, one of which is "Sustaining a safe, secure, and effective nuclear arsenal".

The Directors of Livermore and Sandia joined me in issuing a tri-lab statement about the NPR in April. We felt it was important to first outline the roles and responsibilities of the national laboratories in terms of providing the technical underpinnings to ensure the safety, security, and effectiveness of the nuclear deterrent. With regard to the NPR's overall framework, I repeat here what we said:

> "We believe that the approach outlined in the NPR, which excludes further nuclear testing and includes the consideration of the full range of life extension options (refurbishment of existing warheads, reuse of nuclear components from different warheads and replacement of nuclear components based on previously tested designs), provides the necessary technical flexibility to manage the nuclear stockpile into the future with an acceptable level of risk.
>
> We are reassured that a key component of the NPR is the recognition of the importance of supporting a modern physical infrastructure—comprised of the national security laboratories and a complex of supporting facilities—

and a highly capable workforce with the specialized skills needed to sustain the nuclear deterrent."

While the joint statement reflects the Laboratory Directors' collective views, I will elaborate on my own thinking on the NPR. It clearly emphasizes the three key elements of Stockpile Stewardship—hands-on work on the stockpile; the science, technology and engineering base; and the infrastructure at the laboratories and plants. I agree with the NPR's view that these are the three critical elements of the nuclear weapons enterprise. It is essential that all of these elements be in balance and adequately funded to maintain a safe, secure, and effective stockpile. I will focus my remarks on each of these elements in turn.

Stockpile work

The NPR is explicit about the weapons that need life-extension over the next 10 years: completion of the W76, proceeding on the full scope life extension of the B61, and study of the W78. I strongly agree with the NPR assertion of the need to increase the safety and security of our systems. The LEP process provides opportunities to do so, for example by switching all conventional high explosive (CHE) primaries with insensitive high explosive (IHE) primaries to increase safety margins and deploying certain intrinsic surety systems in the stockpile to better meet today's security challenges.

The NPR's statements on needed LEPs align well with the assessments that the Laboratories have made in recent years. We have seen that in many cases, the uncertainties associated with the current issues identified through surveillance threaten to overwhelm the small performance margins that characterize many of the weapons in the current stockpile. Essentially, this uncertainty dictates that almost every weapon system in the current stockpile will require completion of some type of life extension activity in the next 25 years.

The available mitigation actions for the results observed in surveillance, such as changes external to the nuclear package or relaxation of certain military requirements are reaching their limits. Consequently, as the Perry Commission observed, "The Stockpile Stewardship Program and the Life Extension Program have been remarkably successful in refurbishing and modernizing the stockpile . . . but cannot be counted on for the indefinite future." We will need to take advantage of the flexibility articulated in the NPR to go beyond just refurbishment that has been considered to date and evaluate the full range of options (refurbishment, reuse, and replacement) to increase nuclear performance margins to mitigate the need for nuclear testing.

The NPR states that in "any decision to proceed to engineering development for warhead LEPs, the United States will give strong preference to options for refurbishment or reuse." The NPR also strongly endorses, and the NNSA Stockpile Stewardship and Management Plan reinforces, the importance that on a case-by-case basis, the full range of LEP approaches will be considered: refurbishment, reuse, and replacement. I recognize the sensitivity of this topic but am convinced that allowing the laboratories the flexibility to present policy makers with our best technical recommendations to meet requirements is critical to our role in the stockpile management process. This approach greatly reduces the possibility of having to conduct nuclear testing, while at the same time exercising our nuclear designers and engineers. I do not feel overly constrained by the language in the NPR; rather, I believe it provides the necessary flexibility to manage the stockpile with acceptable levels of risk.

The starting point for all of this hands-on work, of course, is the stockpile surveillance program that pulls actual units from service and puts them through rigorous destructive and non-destructive testing. Through these efforts we are able to anticipate issues as well as learn when issues may require action, but I have been concerned for some time that we are not doing as much surveillance as we should be doing. The NPR states that investments are required in "Strengthening the ST&E base needed for conducting weapon system LEPs, maturing advanced technologies to increase weapons surety, qualification of weapon components and certifying weapons without nuclear testing, and providing annual stockpile assessments through weapons surveillance [emphasis added]." I agree with this assessment. Since our knowledge base begins with surveillance, it is essential that we sustain support in this area.

Science, Technology, and Engineering

I strongly endorse the view of the NPR on strengthening the ST&E base; it is this base that provides the underpinning of confidence in the stockpile in the absence of nuclear testing. This expertise can only be maintained by continued scientific advances; it cannot be static. However, it has been allowed to erode in recent years,

putting at risk our ability to make the necessary future advances in our capabilities. It is important to note that often years of technical work, for example in actinide sciences, are required ahead of time to enable the successful completion of today's requirements. Without investment today future confidence is at risk.

In addition, it is essential that we acquire experimental data from non-nuclear experiments to provide the 'ground truth' about stockpile issues. Today, we are beginning to see many of the investments of Stockpile Stewardship come to fruition—notably the Dual-Axis Radiographic Hydrodynamic Test at Los Alamos, the NIF at Livermore, and the MESA facility at Sandia—yet, we have inadequate resources to carry out the all key experiments at these facilities. Just as the Nation is positioned to reap the benefits of these investments, funding declines make it extremely difficult to maintain, use, or enhance these facility capabilities that are necessary to preserve our deterrent and to further other national security goals.

Similar to the world of experiments, today we are faced with an equal computational challenge and opportunity. To maintain the scientific vitality, international competitiveness, and leadership needed to support the administration's nuclear posture, continued advancement to exascale class computation is necessary. Such a capability will position us to provide better support for the stockpile, particularly in the form of surety options, and to provide reliable support for intelligence analysis including emerging foreign threats in the broad area of nuclear security.

Compounding that challenge of a healthy, vibrant ST&E base is the aging workforce at Los Alamos and elsewhere in the complex. At Los Alamos, the average age of career employees is now over 48, and 32 percent of all career employees are expected to retire within the next 5 years. Without an infusion of younger talent who can become recipients and beneficiaries in the transfer of knowledge from those with decades of experience, we will be at risk for loss of that knowledge.

Aging Infrastructure

Much of the nuclear infrastructure needed by the United States resides in facilities that date back to the 1950s. While we take great efforts to ensure our employees are safe in these aging facilities and that the public is not put at risk, the challenges and costs to maintain their active status is mounting rapidly.

The NPR and administration's fiscal year 2011 budget support the Uranium Processing Facility (UPF) in Tennessee and the Chemistry and Metallurgy Research Replacement (CMRR) Nuclear Facility in New Mexico. They represent the critical next step in shrinking the Nation's nuclear infrastructure footprint while allowing these vital operations to continue in the most safe and secure environments possible. I strongly endorse investments in these two facilities and believe without them the costs associated with maintaining the existing facilities will eventually overwhelm the weapons program budgets.

The CMRR project at Los Alamos will replace the existing Chemistry and Metallurgy Research (CMR) facility, completed in 1952, that is at the end of its useful life. This facility houses the analytical chemistry, materials characterization, and actinide research and development activities that are required to support a wide spectrum of work at Los Alamos. The work in CMRR is critical to sustaining the Nation's nuclear deterrent, but it also is critical to nonproliferation efforts, development of power sources for U.S. space missions, training of IAEA inspectors and the work of nuclear forensics. We have been working closely with our industry partners to bring strong project management to this effort and to deliver this important project on cost and schedule. I am proud to report that on the first phase of this project, construction of the Radiological Laboratory Utility Office Building (RLUOB), we did just that: it was completed on time and budget last year. We are in the process of outfitting that facility and expect to occupy RLUOB in 2012. We continue to work closely with NNSA on the design of the next and final stage of the project, the Nuclear Facility. To successfully deliver this project, it will be important to have certainty in funding and consistency of requirements throughout the project.

At the same time, there are many other essential facilities across the complex and at Los Alamos that cannot be neglected because of our necessary focus on the major nuclear facilities. Infrastructure considerations must include operation of current facilities and the consolidation of old, inefficient ones. For example, we are working to identify adequate funding to maintain and operate the LANSCE facility for material properties, carry out planned actinide research and renew an aging infrastructure where over 50 percent of the buildings are more than 40 years old.

To reduce costs we have already eliminated a million square feet of antiquated laboratory and office space. Using funds from the American Recovery and Reinvestment Act we are in the process of decontaminating and demolishing the earliest plutonium and uranium facilities at the Laboratory.

FISCAL YEAR 2011 BUDGET PROPOSAL

In addition to the NPR, the administration has developed a fiscal year 2011 budget that moves us in the right direction. I view the NNSA's fiscal year 2011 budget request as a positive first step and I urge its approval by Congress. The $624 million increase to Weapons activities is primarily focused on addressing the crumbling infrastructure of the Complex – most notably the plutonium infrastructure at LANL and the uranium infrastructure at Y–12, as well as beginning to attend to the needs of an aging stockpile with increased funds for Life Extension Programs. These are welcome increases and will begin to address some of the concerns that the Strategic Posture Commission and the Laboratory Directors have raised in recent years.

Restoring the scientific and physical infrastructure—all while managing pension and other challenges—will take time and sustained support by Congress. Sustaining strong science funding in the form of Science Campaigns and advanced computing, as well as the infrastructure account, known as Readiness in Technical Base and Facilities that underlies all of the work we do, is essential. This funding enables us to carry out the fullest of scientific research and development efforts necessary to meet our nuclear weapon mission and broader national security needs and to attract and retain the best and brightest scientists.

CHALLENGES

The NPR provides the necessary policy framework, which I hope leads to a national consensus, and the fiscal year 2011 budget request provides the first step in the fiscal implementation of the roadmap to sustain the long-term safety, security, and effectiveness of the stockpile. It is important to recognize that to fully implement this roadmap requires investments that carry across multiple administrations and multiple Congresses. Today, I fear that there is already a gap emerging between expectations and fiscal realities. I fear that some may perceive that the fiscal year 2011 budget request meets all of the necessary budget commitments for the program; however, there are still significant financial uncertainties, for example, the design of the UPF and CMRR are not complete and the final costs remain uncertain.

As I look to the future, I remain concerned that science will be squeezed when trying to compete with capital infrastructure investments and life extension program funding priorities. Having experienced three decades of Federal budgets and their impacts on the weapons program, it will be challenging to sustain the increases the administration has called for. Just as I am encouraged by the significant increase we see in fiscal year 2011, I am concerned that in the administration's section 1251 report, much of the planned funding increase for Weapons Activities do not come to fruition until the second half of the 10 year period.

Another example of the fiscal challenges that I see on the horizon is related to pensions. Like many other organizations across the country, we at Los Alamos are facing a pension shortfall during the current fiscal year and it is expected to grow over the next 2 years.

In fiscal year 2010, the Laboratory has worked closely with the NNSA to resolve a pension shortfall of $76 million. Part of the solution has been to require employees to make contributions; the Laboratory is increasing its fringe rates to cover costs and NNSA has provided assistance on the order of $46 million. Next year, the pension shortfall is expected to be $77 million, and in fiscal year 2012, the shortfall is expected to grow to about $200 million. NNSA is aware of this issue and we are working closely on possible options to address it. My chief concern is that if the Laboratory must shoulder the bulk of this increase, this will dramatically reduce the funds available for programmatic deliverables and cause significant disruption of the Laboratory workforce.

As I noted earlier, it will be important that as a nation we can align expectations with the fiscal realities that we see. At the same time, it is essential that we balance investment across all three major elements of the program—hands-on stockpile activities, ST&E, and infrastructure. For example, without investment in ST&E today we put at risk timely execution of the program beyond the very near term. On the other hand, focus on near term stockpile LEPs without infrastructure investment limits the near term program scope and efficiency and puts at risk longer term timely execution. Stability of funding plans is also important so that the balance that is struck can actually be executed. One approach to maintain focus on these issues across multiple administrations and Congresses could be a set of "safeguards," that have been used in past arms control treaties.

CONCLUSION

Thank you again for the opportunity to appear before you to testify on this important subject. As I stated, I am very encouraged by the progress this administration has made both on the policy and the budget fronts. The NPR provides the policy framework with the technical flexibility to manage the stockpile with an acceptable level of risk and the fiscal year 2011 budget request is a positive step forward.

I am cautiously optimistic that with Congress' support we—as a Nation—can recapture the bipartisan consensus that once existed about the Nation's strategic deterrent and the overall nuclear weapons complex. At the same time, I have concerns about sustaining the focus and an appropriate budget over the several decades for which it will be required. As a Laboratory, we are dedicated to ensuring the innovative science and engineering necessary to sustain our strategic deterrent and that can be applied to the many challenges the Nation now faces. Maintaining the necessary focus and resources of the administration and Congress is critical in order to achieve these national goals.

I look forward to engaging further with the committee on this important topic and I welcome your questions.

Chairman LEVIN. Thank you very much, Dr. Anastasio.

Dr. Miller.

STATEMENT OF HON. GEORGE H. MILLER, PH.D., DIRECTOR, LAWRENCE LIVERMORE NATIONAL LABORATORY

Dr. MILLER. Thank you, Chairman Levin and Ranking Member McCain and distinguished members of the committee, for your continuing support of the Nation's stockpile stewardship program. Like Dr. Anastasio, I have devoted much of my career to the nuclear weapons program. Several of the weapons that are currently in the U.S. arsenal I designed personally. So this is an issue about which I care deeply.

There are three points that I'd like to emphasize today. Technically, we have an approach that can maintain the safety, security, and effectiveness of our arsenal without nuclear testing and without introducing new military capabilities. To meet those mission requirements and carry out the program of work will require sustaining the nuclear security enterprise for decades with a balanced investment in the stockpile itself, in refurbishing and maintaining the critical physical infrastructure, and in supporting the underpinning science, technology, and engineering. Above all, we together must nurture and sustain the outstanding stewards at our laboratories and production facilities.

From a scientific and technical point of view, I have confidence that we can maintain a safe, secure, and effective deterrent through the stockpile stewardship program because of the successes that we have had to date and our ability to build on that success. We have greatly improved our simulation and experimental capabilities. These are unique national assets that allow us to understand details about the performance of weapons that went undiscovered in the era of nuclear testing.

We have found and corrected issues in the stockpile and are continuously improving our abilities to assess weapons performance and certify the changes that are necessary in order to extend the life of the stockpile. We have successfully extended the life of some of the systems in the stockpile. We are providing hands-on experience to train the next generation of stockpile stewards.

The President's 2011 budget request seeks increased funding to reverse the recent declining budget trends and create a sustainable stockpile stewardship enterprise. The Nation's deterrent requires

this SSMP, which is adequately funded by successive administrations and Congress to provide the funding to meet the mission requirements.

Today as we sit here, additional investments are needed in all three areas of the SSMP: in the science and technology that underpins our understanding, in the LEPs that are necessary to keep the systems themselves alive, and in the modernization of the facilities and infrastructure. I urge Congress to work with the administration to support this vital first step.

The science and technology which underpins our confidence in the stockpile is of vital importance to understand the nature of the stockpile itself. We call this surveillance. We need, in my opinion, to step up the rate of surveillance and become more proficient at detecting issues early through the technologies that we have developed. We need to take full advantage of the two-laboratory system to provide assessments of the stockpile as it moves forward and ages. Much like something else that we're very familiar with, when we are diagnosed with a serious illness we frequently ask for the opinions of more than one doctor.

We need to continue to pursue remarkable advances in our assessment tools and in using the experimental facilities and continuing to advance the simulation capability beyond what we currently have. We will need to undertake LEPs over the next 2 decades to extend the life of the systems that are currently in the stockpile.

These options will be based on previously tested nuclear designs and it's very important that we have the ability to consider all of the technical options, from refurbishment to component reuse to replacement, while carefully considering through this process the possibilities of improving the safety, security, manufacturability, maintainability of the stockpile, and carefully considering issues of cost and risk and our ability to meet the overall goals of the country.

These LEPs also offer the opportunity to provide important resiliency to the stockpile as the size is reduced by having warheads that are easily adaptable from one system to another.

Finally, we need to modernize our facilities. We need to replace the Cold War-era facilities, particularly for processing uranium and plutonium, and upgrade the physical infrastructure of the complex. This will require major increases in funding while sustaining the balance with the other parts of the program.

Above all, we need to nurture and sustain the outstanding stewards at our laboratories and production facilities and help effectively mentor them so that we can create our future. Long-term success is ultimately dependent upon the quality of this workforce. That workforce needs a program that is stable, that's technically engaging, and is of recognized importance to the Nation.

While the President's budget for fiscal year 2011 is a good start, the 10-year plan calls for continued significant budget increases. These are needed in order to carry out the program of work that I outlined before. It is a major undertaking and one that requires our collective sustained attention and focus.

Again, thank you very much for your continued support for this important program and for your continued interest in discussing these important issues. Thank you.

[The prepared statement of Dr. Miller follows:]

PREPARED STATEMENT BY DR. GEORGE H. MILLER

OPENING REMARKS

Mr. Chairman and members of the committee, thank you for the opportunity to provide a statement on the status and future prospects of the Department of Energy/National Nuclear Security Administration's (NNSA) Stockpile Stewardship Program to sustain the safety, security, and effectiveness of the Nation's nuclear stockpile. My name is George Miller and I am the Director of the Lawrence Livermore National Laboratory (LLNL).

LLNL is one of NNSA's two nuclear design laboratories and a principal participant in the Stockpile Stewardship Program. National security depends greatly on the success of our stockpile stewardship efforts. I want to thank the committee for your interest in and continued support for these activities and your commitment to the program's success.

In addition to stockpile stewardship, our Laboratory's nuclear security responsibilities include engaging in vital national programs to reduce the threats posed by nuclear proliferation and terrorism. The Laboratory also applies its multidisciplinary science and technology to provide solutions to a broader range of pressing national and global security challenges.

INTRODUCTION

From a scientific and technical viewpoint, I am confident that we can maintain a safe, secure, and effective nuclear deterrent through a science-based Stockpile Stewardship Program that is balanced, integrated, and sustained over time; this will require the support of successive administrations and Congress and sufficient funding to meet mission requirements. Stockpile stewardship is a cornerstone of the Nation's strategic deterrent for the future. As demonstrated by the program's achievements to date, I believe that the highly capable scientists and engineers at the NNSA national laboratories and production facilities will be able to address issues that arise in an aging, smaller nuclear stockpile by utilizing and further advancing our exceptional computational and experimental tools and employing the full range of life-extension program (LEP) options.

My optimism is tempered by recent funding trends in—what to date—has been a very successful Stockpile Stewardship Program. Continuing success in the program's scientific and technically challenging activities will require additional new investments in major facilities and particular attention to sustaining the skills of our workforce. Budget constraints to date have resulted in deferral of LEPs and slower warhead surveillance rates than is technically desired. These constraints have also delayed production schedules; postponed important deliverables in science, technology, and engineering; delayed resolution of identified stockpile issues; and hindered efforts to develop modern and efficient manufacturing processes. In addition, there are fewer highly skilled stockpile stewards supporting the program than were present as recently as 5 years ago. Our Laboratory now has 2,608 scientists and engineers—609 fewer than in May 2005. Concurrently, stewardship is becoming technically more challenging as weapons continue to age beyond their intended lifetimes. In my 2009 Annual Stockpile Assessment letter to the Secretaries of Defense and Energy and the Chairman of the Nuclear Weapons Council, I expressed concerns about the impact that these trends will have on sustaining confidence in the stockpile.

The fiscal year 2011 budget request seeks to reverse recent funding trends and reflects the need for increased investment to maintain sufficient capability to ensure the viability of the U.S. stockpile. The Nation's nuclear strategy—with or without the planned stockpile reductions—requires a Stockpile Stewardship Program that is balanced, integrated, and sustained over time. NNSA has provided to Congress its Stockpile Stewardship and Management Plan, which is funded in the fiscal year 2011 budget request with a 9.8 percent increase ($624 million) compared to fiscal year 2010. This is a good start, but only a start. The increased level of investment must not only be sustained but grow over time to provide for construction of new facilities and support increased LEP activities.

My testimony emphasizes several key points about a balanced, integrated, and sustained Stockpile Stewardship Program:

• Accomplishments. Stockpile stewards have achieved many outstanding successes since the program began. These accomplishments give me confidence that the "science based" approach being pursued is a workable path forward for sustaining the safety, security, and effectiveness of the Nation's nuclear deterrent.
• A Sustainable Program. Stockpile stewardship is scientifically and technically very demanding. It is a very active, integrated program and to sustain it, its interdependent facets must be adequately funded to progress in a balanced manner.
• The Budget. With the President's fiscal year 2011 budget, we can begin to reinvigorate the Stockpile Stewardship Program. The requested additional funds will enable greater progress on many fronts—from stockpile life-extension activities, to recapitalizing the infrastructure, improving assessment capabilities, and building the knowledge base required to answer increasingly difficult questions about weapon performance over its full life cycle.
• Life-Extension Programs. Options for LEPs will be based on previously tested nuclear designs. We will consider, on a case-by-case basis, the full range of LEP options (refurbishment, reuse, and replacement) to provide findings and technical recommendations for engineering development decisions.
• The Workforce. The Stockpile Stewardship Program's most valuable and irreplaceable assets are the unique individuals who sustain it. Confidence in the stockpile ultimately depends on confidence in the stockpile stewards at the NNSA laboratories and production facilities. We must attract top talent to the program and sustain over time specialized technical skills and expertise, which provide the basis for judgments about the stockpile and stewardship actions taken, through mentoring and hands-on experience.

SCIENCE-BASED STOCKPILE STEWARDSHIP ACCOMPLISHMENTS

The science-based Stockpile Stewardship Program was launched on the premise that by developing a much more thorough understanding of the underlying science and technology that governs nuclear weapons performance, the country could maintain confidence in the stockpile without requiring nuclear testing. The knowledge gained must be sufficiently detailed to assess with confidence the safety, security, and effectiveness of the stockpile. We must have the ability to deal with whatever issues arise using existing nuclear test data together with advanced computational and experimental tools. Very ambitious goals were set to expeditiously develop increasingly sophisticated tools and apply them to arising issues in an aging stockpile.

We have made significant progress since the Stockpile Stewardship Program began. Use of the many tools and capabilities developed since the end of nuclear testing has greatly increased our understanding and knowledge of the stockpile. These tools and capabilities, together with the existing nuclear test database, have enabled the NNSA laboratories to annually assess and, as required, extend the life of the warheads in the U.S. stockpile. Some highlights—featuring work at LLNL—include:

High-Performance Computing

At its onset, the Stockpile Stewardship Program set the extremely challenging goal—many thought unachievable—of improving scientific computing performance by a factor of a million over a decade. That goal was achieved with the delivery of the 100-trillion-operations-per-second ASC Purple supercomputer to LLNL in 2005. The machine has served as a workhorse for all three NNSA laboratories, performing very demanding 3D weapons simulations. This highly successful partnership between NNSA and the high-performance computing industry continues with the 20,000-trillion-operations-per-second Sequoia machine, which is on track to become operational at LLNL in 2012.

High-Fidelity Weapons Physics Simulations

Laboratory physicists and computer scientists stepped up to the challenge of developing weapons simulation codes that model the physics with far greater fidelity and run efficiently on computers with thousands of processors working in parallel. In 2002, LLNL scientists performed the first-ever complete 3D simulation of a nuclear weapon explosion—with a level of spatial resolution and degree of physics realism previously unobtainable. Supercomputers have also been used to gain valuable insights into the properties of materials at extreme conditions and details about the formation and growth of hydrodynamic instabilities. These improved capabilities

have made possible expeditious development of LEP design options and their certification.

Vastly Improved Experimental Capabilities

Thoroughly diagnosed non-nuclear tests are used to gather input data for weapons physics simulation models and validate their performance. Experiments at LLNL's Contained Firing Facility and the Dual-Axis Radiographic Hydrodyanamic Test (DARHT) Facility at Los Alamos National Laboratory (LANL) have provided key hydrodynamic performance information for applications ranging from LEPs to weapon safety studies. Data from the Joint Actinide Shock Physics Experimental Research (JASPER) gas-gun experiments were instrumental in the very successful plutonium aging study, and tests conducted at LLNL's High Explosives Applications Facility (HEAF) enable improved modeling of aging high explosives. With commissioning of the National Ignition Facility (NIF) in 2009, stockpile stewards now have an experimental facility capable of creating the temperatures and pressures necessary to study the physics of the nuclear phase of weapons performance.

Improved Understanding of Materials Aging and Weapons Performance

A long-term study by LLNL and LANL concluded that the performance of plutonium pits in stockpiled weapons will not sharply decline due to aging effects—a result with important implications in planning the future of the production complex. Through simulations and experiments, we have a much deeper understanding of the behavior and aging properties of weapons materials ranging from plutonium and high explosives to crystalline metals and polymers. Recently an LLNL scientist received an E.O. Lawrence Award for breakthrough work to resolve a previously unexplained 40-year-old anomaly that was one of the factors that drove the need for continued nuclear testing. Now, in simulation codes, a physics-based model can replace the use of an ad hoc calibration factor that had to be adjusted depending on weapon design specifics and nuclear test data. The effort involved combining high-fidelity non-nuclear experiments, the latest simulation tools, and re-examination of archival nuclear test data. Experiments at NIF are serving to confirm the model.

Successful Life-Extension Program

In 2004, NNSA successfully completed its first program to extend the lifetime of a stockpiled weapon without resorting to nuclear testing. Refurbishment of the W87 ICBM warhead—the design in the stockpile with the most modern safety features—extends the weapon's life by 30 years. LLNL (with Sandia National Laboratories) developed and certified the engineering design and worked closely with the production facilities to ensure the product quality. The program has served as a model of the processes to be followed by subsequent and future LEPs. Today, the NNSA, its laboratories, and production facilities have continued this success with a major program to extend the life of the very important W76 Trident II SLBM warhead.

The successes to date have also given us insight into the better tools that are needed and science and technology areas that require continued work. These improvements will put our annual assessment of the stockpile on the firmest footing and provide us the insight and tools to make wise decisions and ensure the safety, security, and effectiveness of the stockpile as we move forward. For instance, from simulations performed to date, we have learned that we will need at least exascale—1,000,0000 trillion operations per second—to fully resolve the phenomena we have discovered.

A BALANCED, INTEGRATED, AND SUSTAINED STOCKPILE STEWARDSHIP PROGRAM

Stockpile Stewardship Program accomplishments to date give us confidence that the "science based" approach being pursued is a workable path forward to sustaining the safety, security, and effectiveness of the Nation's nuclear deterrent. Stockpile stewardship is scientifically and technically very demanding, yet the high-caliber experts at the national laboratories have proven themselves worthy of this major challenge time and time again.

Since 2005, the buying power of NNSA's Defense Programs has declined approximately $1 billion. Yet, the program will grow even more demanding as nuclear weapons continue to age far beyond their intended lifetime. As the stockpile continues to be downsized, even more pressure will arise to understand the state of each individual weapon. More difficult manufacturing issues are arising in LEPs and we have largely exhausted available options to improve performance margins through changes external to the warhead package.

There is growing widespread recognition that the Stockpile Stewardship Program—its workforce and facilities—must be reinvigorated to sustain a safe, secure, and effective nuclear arsenal over the long run. Reports commissioned by Congress

(e.g., America's Strategic Posture and the Stockpile Stewardship and Management Plan prepared by NNSA) and reviews pursued by the Executive Branch (e.g., the 2010 Nuclear Posture Review (NPR)) have concluded that significantly increased investments are needed to support (in the words of the NPR) "a modern physical infrastructure—comprised of the national security laboratories and a complex of supporting facilities—and a highly capable workforce with the specialized skills needed to sustain the nuclear deterrent."

A balanced and sustainable Stockpile Stewardship Program integrates stockpile support activities—which include weapons surveillance, assessments, and as necessary, LEPs—with investments to modernize facilities and efforts to greatly improve scientific understanding of the details of nuclear weapons components and their performance. The many facets of the program are tightly interconnected. Even with stable overall funding at an adequate level of support, long-term success requires judicious balancing of evolving priorities and appropriate levels of effort.

Weapons Surveillance—to predict and detect the effects of aging and other stockpile issues. We need to step up the rate of stockpile surveillance and continue to become more proficient at detecting and predicting potential problems early. The use of embedded sensors, which we are developing, would enable persistent surveillance and improve our knowledge of the specific state of each stockpiled weapon. Data would be indicative, for example, of aging and degradation, mechanical integrity, and exposure to harsh environments. In addition, we are developing ever more sophisticated tools to study how aging alters the physical characteristics of weapon materials and how these changes affect weapon effectiveness and safety.

Assessments—to analyze and evaluate effects of changes on weapon safety and performance. The Stockpile Stewardship Program includes a comprehensive set of activities to annually assess each weapons system and to address issues that arise. It is particularly important, in my view, for processes to actively engage both centers of nuclear design expertise—LLNL and LANL—to provide independent assessments. This is much like having a serious illness: advice from more than one independent source is crucial to the decisionmaking process. As we move further and further from a workforce that has actually tested a nuclear device, the independence of the two design centers is increasingly important. Our assessments are also benefiting from the development of Quantification of Margins and Uncertainties, a methodology that is increasing the rigor of weapon certification and the quality of annual assessments. To the extent possible, our assessments require rigorous scientific and engineering demonstration and evaluation. As described below, we have been acquiring increasingly powerful tools to do so.

LEPs—to sustain the stockpile through refurbishment, reuse, and/or replacement. The laboratories must work closely with production facilities to integrate the production of parts with the development of new materials and manufacturing processes. Manufacturing is a particularly demanding challenge because the plants have to overcome extensive infrastructure and operational challenges and production technologies need modernization. Options for LEPs must be thoroughly analyzed to present decisionmakers with low risk, cost efficient alternatives to consider.

Science and Technology Foundations—to provide stockpile support through a thorough understanding of nuclear weapon performance and sustain the necessary base of specialized skills. In "keystone question" areas such as boost physics and energy balance, Predictive Capability Framework campaigns utilize our advanced stockpile stewardship tools to fill gaps in knowledge about nuclear weapon performance relevant to existing or expected issues about stockpiled weapons. These activities integrate the use of state-of-the-art high-performance computers, high-fidelity simulation models, and data gathered from exceptional experimental facilities. This cutting-edge research both provides data for stockpile stewardship and enables the retention of nuclear weapons expertise in a staff that increasingly will have no nuclear test experience. We must nurture and exercise the scientific judgment of stockpile stewards.

Modernized Facilities and Infrastructure—to replace major facilities for processing plutonium and uranium and upgrade the physical infrastructure of the weapons complex.

NNSA's plans are to pursue the Chemistry and Metallurgy Research Replacement-Nuclear Facility (CMRR–NF) project at LANL and build a new Uranium Processing Facility (UPF) at the Y–12 Plant in Oak Ridge, Tennessee. Currently, these more-than-50-year-old facilities for processing plutonium and uranium are oversized, increasingly obsolete, and costly to maintain. They are also safety, security, and environmental concerns. These two are high priority and the most costly of numerous infrastructure modernization projects throughout the complex. Because of these projects, substantial increases above the fiscal year 2011 budget will be required to sustain a balanced, integrated overall program. As the cost baselines are

better defined, the changes that occur must be accommodated without upsetting overall program balance—the balance among science, technology, and engineering; life extensions of the stockpile; and recapitalization of the infrastructure.

IMPLICATIONS OF THE PRESIDENT'S FISCAL YEAR 2011 BUDGET PROPOSAL

NNSA has provided to Congress its 10-year Stockpile Stewardship and Management Plan, developed as a complement to the NPR and New START. The plan is funded in the fiscal year 2011 budget request with a 9.8 percent increase ($624 million) compared to fiscal year 2010. This is a good start and will address a number of immediate needs for fiscal year 2011. It is noteworthy that the plan calls for significant increases in the out-years, as increasing levels of funding will be required for the LEPs and construction of major facilities. The fiscal year 2011 budget request will serve to meet most needs in the three overarching areas:

Science, Technology, and Engineering—for technical assessments and certification of the stockpile. Assessments of the condition of weapons and certification of the engineering design of implemented LEPs depend on the critical judgments of stockpile stewards and their nuclear weapons expertise. Both are developed by hands-on experience working challenging nuclear weapons science, technology, and engineering issues. In addition to supporting stockpile needs and building expertise, this work also advances our fundamental understanding of nuclear weapons performance so that future stockpile stewards will be able to tackle even more difficult issues as they arise. The increased funding from fiscal year 2010 levels will provide a critically needed boost to activities:

- Stockpile Assessments. The funding increase in fiscal year 2011 will support implementation at the NNSA laboratories of a new dual validation process that was established in the National Defense Authorization Act for Fiscal Year 2010. The Independent Nuclear Weapon Assessment Process (INWAP) will strengthen annual assessments. Two sets of challenge teams (one from LLNL and SNL and the other from LANL and SNL) are being formed. Both the challenge team and the "home team" will have access to all relevant data and analysis about a weapon system—to be applied to annual assessments and peer reviews of significant finding closures and LEP certifications.
- Keystone Science Issues. Science campaigns in the Stockpile Stewardship Program aim at filling major gaps in our knowledge about nuclear weapon performance—for example, in the areas of energy balance and boost physics. The goal is to remove "adjustable parameters" in our simulations and replace them with first-principles physics models. Such improvements are critically important to providing high confidence in the difficult decisions that might arise in sustaining an aging stockpile.
- This extremely challenging research calls for a concerted effort that combines continuing advances in high-performance computing with well-diagnosed experiments at the laboratories' unique experimental facilities. We have a golden opportunity to dramatically advance our knowledge base. Progress, in particular, depends on effective use of NIF (allowing stockpile stewards to experimentally explore the physics of nuclear phases of nuclear weapons performance), DARHT, JASPER, and our other smaller scale experimental facilities. Importantly, efforts to support these keystone science issues are increased in the fiscal year 2011 budget request.
- Research and Development on Technology Advances for Stockpile Support. An important responsibility of the NNSA laboratories is to explore what is technically possible in nuclear design. Exploratory studies hone the skills of stockpile stewards and help us to avoid technical surprise from other nations' nuclear weapons activities. In addition, we develop advanced technologies that could be applied to the U.S. stockpile, consistent with the goal of no new weapons or improvements in military capabilities. These include means for substantially improving weapon safety and security that could be implemented as part of an LEP. The proposed budget increases will help accelerate progress in this area to ensure availability of these technologies as LEPs are proposed and carried out over the coming decade.
- Advances in High-Performance Computing. We have made remarkable advances in high-performance computing and simulations, yet it is imperative that we continue to make rapid progress. Early success in the Stockpile Stewardship Program brought us "terascale" computing (trillions of operations per second); we now reached "petascale" (thousands of trillions); and we need "exascale" (millions of trillions) for two reasons. Petascale makes 3D high-fidelity simulations of weapons performance practical. However,

better models of boost physics and thermonuclear burn processes still need to be developed (in concert with experiments). That will require much greater computing horsepower. Second, as mentioned above, the underpinning of our assessment and certification is uncertainty quantification. Rigorous implementation of the methodology for each weapon system requires the running of many thousands of high fidelity 3D simulations to map out the impact of uncertainties on weapon performance; hence, the need for much greater computing power.

The proposed fiscal year 2011 budget adequately supports computer center operations at LLNL and acquisition of the 20-petaflop Sequoia machine, which will become operational in 2012. More than a factor of ten faster than the current best, it is the next major advance in high-performance computing. Now is the time to start planning and preparing for the next step toward exascale, which is a grand challenge requiring additional resources.

An Active LEP Effort together with Aggressive Surveillance. As mentioned below, a number of stockpile systems require LEPs in the next one-to-two decades. Over the past two decades, two LEPs have been completed. Over the next 10 years, plans call for the the completion of one in progress, start of two full-scope LEPs, and preparation activities for additional LEPs the following decade. In addition to LEP support, funding needs to be increased from fiscal year 2010 levels to address current surveillance shortfalls and mature safety and security technologies for production readiness for future LEPs. We look forward to participating in a study to identify and evaluate LEP options for the W78 Minuteman III ICBM warhead, which is planned to begin in fiscal year 2011. NNSA has announced its intention to assign the W78 LEP to LLNL. The fiscal year 2011 budget request provides adequate support for our B61 LEP peer review responsibilities as well as our responsibilities to support existing LLNL-designed stockpile systems.

Recapitalization of Plant and Laboratory Infrastructure. Recapitalization is necessary to build a responsive infrastructure able to meet program and production needs. This includes fulfilling science, technology, and engineering program objectives and production requirements. Such an infrastructure is essential to the complex's ability to respond in a timely manner to technical issues and/or emerging threats. In addition to planning for and construction of new facilities (including the very major investments in CMRR–NF and UPF), adequate investments are needed for Readiness in Technical Base and Facilities (RTBF) for operations in and maintenance of existing facilities. My direct concern at LLNL is obtaining sufficient funding in fiscal year 2011 to support operations at HEAF, which is a one-of-a-kind facility for research and development in high explosives and energetic materials, and to support Site 300, the Laboratory's remote experimental site which is home to the Contained Firing Facility.

LIFE-EXTENSION PROGRAMS

Warhead LEPs are undertaken to address issues discovered through surveillance and review processes supporting annual assessments. The role of the LEP is to fix issues that impact overall system effectiveness and extend stockpile life.

Effectiveness is influenced by many factors. Nuclear weapons are not static devices; their chemical and physical properties or characteristics change over time. While plutonium pits have been determined to have a very long service life, aging affects the performance of a number of important components including metals other than plutonium, polymers, neutron generators, and gas transfer systems. In addition, there are many other potential causes of decreased confidence in effectiveness—ranging from design flaws to material compatibility issues. Experience has shown that at least one major new and unanticipated issue is discovered approximately every 5 years.

Thus far, we have been able to retain confidence in warhead safety and effectiveness by offsetting identified increased uncertainties with corresponding increases in performance margins. They have been obtained by changes external to the nuclear explosives package or by relaxing or eliminating military requirements (in coordination with the Department of Defense (DOD)). Options to further improve these margins have largely been exhausted.

Several LEPs activities are in progress and/or recommended by the NPR, and they are supportable with the proposed fiscal year 2011 budget. The W76 Trident II SLBM warhead LEP is well underway. The initial design activities began in fiscal year 2000 and the final refurbished weapon is expected to be delivered in fiscal year 2017. In fiscal year 2011, concept development is scheduled for completion in preparation for a full-scope LEP for the family of B61 nuclear bombs. The first production

unit is planned for fiscal year 2017. In addition, a study to identify and evaluate LEP options for the W78 Minuteman III ICBM warhead will begin in fiscal year 2011. The NPR proposes that this study consider the possibility of having the resulting warhead be adaptable to multiple platforms in order to provide a cost effective hedge against future problems in the deployed stockpile. The first production unit is projected in fiscal year 2021.

These plans for future LEPs are based on consideration of weapon system age and early indicators of impending issues that will need to be addressed. LEP activities formally start with a Phase 6.1 (or Phase 6.2) study conducted jointly with the DOD, which follows processes and procedures that were established for developing weapons during the Cold War and have been adapted for LEPs. These joint concept development efforts consider military requirements and explore LEP options to meet the requirements. They involve extensive supercomputer simulation efforts and supportive experimental activities, thorough interactions with the NNSA production facilities and DOD contractors, and extensive peer review.

Within the Laboratory, we consider the full range of technical options to address military requirements that need to be balanced—for example, form fitting and functioning with an existing delivery system while providing enhanced safety (e.g., insensitive high explosive). In doing so, we consider tradeoffs that emphasize one requirement over another. The output of these evaluations is a set of recommended options for the U.S. Government to consider in deciding on the specific LEP option to proceed to engineering development (Phase 6.3). After a decision to proceed to full-scale development is made, we follow a very disciplined engineering process that involves the design agencies, production agencies, and the responsible military service.

LEPs provide the opportunity to consider adding new safety and security features without degrading overall effectiveness or introducing new military capabilities. Some of these safety and security improvements are ready for deployment now and would make a significant improvement; other even more effective approaches require further research. Considered features would be based on previous nuclear tests. Intrinsic surety, which incorporates the safety and security features inside the nuclear explosives package, provides the highest level of safety and protection against terrorist threats. Examples range from enhanced fire safety to technologies that make acquisition of special nuclear materials from U.S. nuclear weapons of little-to-no-value to a terrorist.

The decision to add surety features is up to the U.S. Government, and the technical feasibility of specific safety and security features depends on the weapon and approach taken to extend its life. The current LEP approach (refurbishment only) limits the range of safety and security features that can be incorporated into certain weapons systems.

The options studied for LEPs will be based on previously tested nuclear designs. To best manage risk, we will consider, on a case-by-case basis, the full range of LEP approaches characterized by the three discrete options along the spectrum of possibilities:

- Warhead Refurbishment—Nuclear explosive package (NEP) composed of existing or newly manufactured components originally designed for that warhead.
- Warhead Component Reuse—NEP composed of components previously manufactured for the stockpile (includes new production of previously manufactured components).
- Warhead Replacement—NEP component not previously produced for the stockpile (based on tested designs).

All potential approaches—or, more likely, combinations of approaches—need to be examined because the areas of most significant risks vary, and often times, have to do with costs, manufacturing issues, the importance of improvements in margins, safety and security, and long-term maintenance and surveillance. These factors differ from system to system, and the various LEP approaches differ in the degree to which they provide flexibility to manage identified risks. They also differ in the degree to which they exercise the skills and capabilities of our people, which is an important consideration in sustaining an experienced workforce. Assessment and certification challenges depend primarily on design details and associated margins and uncertainties rather than the type of LEP approach considered.

Consideration of the full range of LEP options provides the necessary technical flexibility to manage the stockpile with an acceptable level of risk. Our findings and recommendations in studies of options will be based solely on our best technical assessments of cost, risk, and ability to meet stockpile management goals. In decisions

to proceed to engineering development, the U.S. government can consider a number of factors for particular LEP approaches.

THE IMPORTANCE OF PEOPLE

Long-term success in stockpile stewardship fundamentally depends on the quality of people in the program. If the Nation is not confident in the expertise and technical judgments of the stewards, the Nation will not have confidence in the safety, security, and effectiveness of our nuclear deterrent. Over the years, exceptional scientists and engineers have been attracted to LLNL by the opportunity to have access to the world-class facilities, to pursue technically challenging careers, and to work on projects of national importance. A Stockpile Stewardship Program that is stable, technically challenging, and of recognized importance to the Nation is critical to the future success of the program—and to the Laboratory in carrying out its national security responsibilities.

The specialized technical skills and expertise required for stockpile stewardship, which come through mentoring and hands-on experience, take a long time to develop. Program stability is critically important, and it requires a balanced, integrated Stockpile Stewardship Program that has sustained bi-partisan support and is sufficiently funded over the long term. We welcome a strong affirmation by the administration and Congress of the importance of the NNSA laboratories' work in maintaining the U.S. nuclear deterrent through stockpile stewardship.

An important benefit of a strong Stockpile Stewardship Program is that this foundational program helps the NNSA laboratories in meeting broader national security objectives. Clearly, nuclear weapons expertise is directly applicable to the nuclear security challenges of proliferation and terrorism. Other areas of national defense, domestic and international security, and energy and environment security also benefit from LLNL's broad scientific and technical base and international leadership in areas such as high-performance computing.

These activities further strengthen our science and technology workforce, add vitality to the Laboratory, spin new ideas and additional capabilities into the weapons program, and serve as a pipeline to bring top talent to LLNL so that we continue to provide the Nation outstanding stockpile stewards. A broader base of national security programs at the NNSA laboratories is not a substitute for a strong Stockpile Stewardship Program; neither is it a distraction from our defining mission and responsibilities to sustain the Nation's nuclear deterrent.

CLOSING REMARKS

My testimony describing the successes and future challenges in stockpile stewardship supports and amplifies a joint statement my fellow NNSA laboratory directors and I issued when the Nuclear Posture Review was released. We made two key points:

First, that a Stockpile Stewardship Program which " . . . includes the consideration of the full range of life extension options (refurbishment of existing warheads, reuse of nuclear components from different warheads, and replacement of nuclear components based on previously tested designs), provides the necessary technical flexibility to manage the nuclear stockpile into the future with an acceptable level of risk."

Second, that "We are reassured that a key component of the NPR is the recognition of the importance of supporting 'a modern physical infrastructure—comprised of the national security laboratories and a complex of supporting facilities—and a highly capable workforce with the specialized skills needed to sustain the nuclear deterrent."

Finally, I would like to again thank the committee for your interest in and continued support for stockpile stewardship and your commitment to the program's success.

Chairman LEVIN. Thank you, Dr. Miller.

Dr. Hommert.

STATEMENT OF HON. PAUL J. HOMMERT, PH.D., DIRECTOR, SANDIA NATIONAL LABORATORIES

Dr. HOMMERT. Chairman Levin, Ranking Member McCain, and distinguished members of the committee: Thank you for the opportunity to testify. I am Paul Hommert, Director of SNL, a multi-program national security lab. I'm honored to be here with my col-

leagues from LANL, LLNL, and Dr. Schwitters to testify on sustaining nuclear weapons under the New START.

Within the policy outlined in the NPR, the collective DOD and NNSA guidance documents, the fiscal year 2011 budget request, and the force structure terms of the New START, I am confident that SNL can provide the required support for the Nation's nuclear deterrent. This confidence comes from our assessment of stockpile management requirements against our mission, product space, and capabilities.

Within the nuclear weapons complex, SNL is responsible for the design and qualification of non-nuclear components that ensure the weapons perform as intended, when authorized, and remain safe and secure otherwise. We are responsible for hundreds of highly specialized components with extremely high reliability requirements and unique, often very harsh environmental requirements.

Today we are facing new challenges. The weapons in the stockpile are aging and were designed when long life was not a high priority. The radar for the first B61 bomb, for example, was designed for a 5-year lifetime. There are B61s in the stockpile today with components that date back to the 1960s. It is a credit to the stewardship program that we have the technical knowledge to support continued confidence in these weapons systems as they age.

What are the keys to managing the stockpile into the future? First, a strong and modernized surveillance program tailored to the needs of an aging, smaller stockpile, to underpin our annual assessment findings and recommendations. While this is essential for the future, it is not sufficient. Through surveillance activities to date, we have already established a number of stockpile concerns that must be addressed.

Thus, the second element is the LEPs, foremost for us being the B61. This is an immediate challenge for SNL, with a demanding schedule and a technical scope more than twice that of the W76 LEP. I support the full scope approach called for by the NPR and would be very concerned if we only replaced the non-nuclear components with the most immediate aging issues and chose to reuse other non-nuclear components, some of which are even now over 40 years old.

In addition to the surveillance programs and the life extension efforts, we must give strong attention to sustaining capabilities for the future. The highest priority is the viability of our design competencies. In recent years, uncertainty surrounding requirements for the stockpile resulted in the programmatic instability noted by the JASON panel as a threat to the stewardship program. Today, nearly half of the SNL staff with experience in major weapons system efforts are over the age of 55. Their remaining careers will not span the upcoming LEPs. This puts a premium going forward on stable, multi-year program direction and resources to provide opportunities for new technical staff to work with experienced designers.

Also key to sustainment is keeping pace with modern-day technologies. As an example, consider microelectronics, where since we began our most recent full system development effort, the W88, in 1983, there has been a quantum leap in miniaturization and microelectronics functionality that offer real potential for enhancements

to stockpile safety and security which we will realize in the B61 LEP.

Infrastructure sustainment is also critical. We have world-class facilities where we perform a range of scientific research and product qualification. But we also have outdated facilities that were commissioned in the 1950s and 1960s. We are working with NNSA to complete revitalization of our environmental test capabilities required to support the design of the B61 and subsequent LEPs, and to recapitalize the tooling in our trusted microelectronics facility.

At SNL our broad national security work is critical to sustainment. We are well poised to support the New START regime and to continue our contributions to the national security, nuclear security, nonproliferation, and counterterrorism objectives of the Nation. This work exercises and strengthens many of our nuclear weapons capabilities.

New START would not constrain the upcoming life extension imperatives. However, it does reinforce the importance of a modern stockpile, a responsive infrastructure, as we move towards a smaller nuclear arsenal.

Let me close by summarizing the keys to success going forward: a robust surveillance program, stable LEPs, an unyielding attention to sustaining the key aspects of our capabilities for the future—people, technologies, infrastructure, and our broader national security programs.

Thank you and I welcome your questions.

[The prepared statement of Dr. Hommert follows:]

PREPARED STATEMENT BT DR. PAUL J. HOMMERT

INTRODUCTION

Chairman Levin, Ranking Member McCain, and distinguished members of the Senate Armed Services Committee, thank you for the opportunity to testify. I am Paul Hommert, President and Director of Sandia National Laboratories. Sandia is a multiprogram national security laboratory owned by the United States Government and operated by Sandia Corporation[1] for the National Nuclear Security Administration (NNSA).

Sandia is one of the three NNSA laboratories with responsibility for stockpile stewardship and annual assessment of the Nation's nuclear weapons. Within the U.S. nuclear weapons complex, Sandia is responsible for the design, development, and qualification of nonnuclear components of nuclear weapons. It is also responsible for the systems engineering and integration of the nuclear weapons in the stockpile. While nuclear weapons remain Sandia's core mission, the science, technology, and engineering capabilities required to support this mission position us to support other aspects of national security as well. As a multiprogram national security laboratory, Sandia also conducts research and development in nuclear nonproliferation, nuclear counterterrorism, energy security, defense, and homeland security.

The policy framework outlined in the 2010 Nuclear Posture Review (NPR) Report, the high-level implementation plan established by the fiscal year 2011 Stockpile Stewardship and Management Plan and the Report in Response to NDAA fiscal year 2010 section 1251, New START treaty and Nuclear Force Restructure Plans (to be referred to as section 1251 report), and the funding profile described in the Department of Energy fiscal year 2011 Congressional Budget Request weave the fabric of a compelling strategic future for U.S. nuclear weapons policy. In this context and in view of the New START treaty, my statement today will address five closely related issues: (1) the U.S. nuclear stockpile today and in the future; (2) stockpile surveillance; (3) the life extension programs; (4) a retrospective of stockpile stewardship; and (5) verification technologies.

[1] Sandia Corporation is a subsidiary of the Lockheed Martin Corporation under Department of Energy prime contract no. DE–AC04–94AL85000.

THE U.S. NUCLEAR STOCKPILE TODAY AND IN THE FUTURE

As noted in the NPR Report, "The fundamental role of U.S. nuclear weapons, which will continue as long as nuclear weapons exist, is to deter nuclear attack on the United States, our allies, and our partners" (p. vii). Since the end of the Cold War, the stockpile has become smaller in total numbers and comprises fewer weapon types, and its size will continue to decrease. It is natural that nuclear weapons policy in the post-Cold War era should be reevaluated in light of 21st century threats. The administration's joint objectives of maintaining a safe, secure, and effective nuclear arsenal and, at the same time, strengthening the global nonproliferation regime and preventing nuclear terrorism provide a challenging, significant role for Sandia and, indeed, for all those involved in the nuclear weapons program.

Within the context of the nuclear weapons policy outlined in the NPR Report and the collective guidance for implementation provided in the fiscal year 2011 Stockpile Stewardship and Management Plan, the Section 1251 Report, and the Department of Energy Fiscal Year 2011 Congressional Budget Request, and under the New START treaty terms, I am confident that Sandia can fulfill its responsibilities in support of the Nation's nuclear deterrent. That confidence comes from our assessment of the stockpile management requirements against our mission and product space and our capabilities. In their totality, the documents describing the future of the U.S. nuclear deterrent represent a well-founded, achievable path forward, which I understand and support. However, as we stand on the threshold of the next era of stockpile stewardship and management, we must recognize the challenges inherent in this framework. A significant body of work is required to sustain the deterrent into the next two decades, and we must ensure that the resources are commensurate with the requirements and expectations. Specifically, I can be confident that the totality of the stockpile management and deterrent policy can be supported only if the fiscal year 2011 budget is authorized and appropriated at the level of the administration's request and the national significance of our mission is sustained.

Mission and Product Space

Sandia is responsible for the systems engineering and integration of the nuclear weapons in the U.S. stockpile. As systems integrator, we are responsible for numerous unique and challenging assignments, including the engineered interfaces from the warheads to the delivery platforms and surveillance management at the weapon system level for the nuclear weapons complex—both flight testing and system-level ground testing.

Sandia is the nonnuclear component design agency for NNSA. The components that we design ensure that the weapons will perform as intended when authorized through the U.S. command and control structure, and that they remain safe and secure otherwise. These critical functions are provided through our core products of arming, fuzing, and firing systems (AF&Fs), neutron generators, gas transfer systems, and surety systems. We are responsible for literally hundreds of major components in the stockpile. Our products are highly specialized electrical, microelectronic, electro-mechanical, chemical, and explosive components with extremely high reliability specifications and unique, very harsh environmental requirements. For example, an "intent stronglink" is a component that prevents a nuclear weapon from being armed until a unique string of code is entered indicating human intent. Even in the most recent designs, there are more than 200 parts in a component the size of a cell phone. We are also responsible for "weaklink" components, which are designed to fail in a manner that precludes inadvertent nuclear detonation in accident scenarios such as those involving fire or lightning. These safety components must meet stringent requirements.

Sandia designs, engineers, and integrates these specialized products into the Nation's nuclear arsenal through the efforts of a world-class workforce and highly specialized tools, facilities, and equipment. However, to fulfill our responsibilities for the deterrent into the future, we are facing new challenges.

Consider first that most of the weapons in the current stockpile were designed at a time when long design life was not typically a high-priority design requirement. The radar for the first B61 bomb, for example, was originally designed for a 5-year lifetime; today there are B61s in the stockpile with components manufactured in the late 1960s. It is a credit to our Stockpile Stewardship Program that we have the technical knowledge base to support continued confidence in these weapon systems as they age. Indeed, it is also a credit to those who designed the current stockpile that it has lasted well beyond original design lifetimes. Now we are working to provide solutions that will extend the lifetime of our nuclear arsenal for another 30 years.

The state of the stockpile is reported to the President through the annual assessment process. Through this process, we have been, and remain, able to assess the Nation's stockpile as safe, secure, and reliable. That said, as we move forward with the challenging business of extending the lifetimes of U.S. nuclear weapon systems, we must address stockpile aging and degradation, as well as technology obsolescence. In addition, long weapon lifetimes will become a specific design objective.

While the options to refurbish, reuse, and replace are applicable to the nuclear explosive package, almost all of Sandia's life extension work will involve replacements with modern technologies. Nonnuclear components, by their very nature, are subject to a whole range of potential aging and failure modes. Although we may be able to reuse some of the original components, doing so uniformly would be a fundamentally unwise option when their service life must be extended by another 30 years. In addition, only modern technology will enable introduction into the stockpile of the safety and security required by the NPR Report.

STOCKPILE SURVEILLANCE

Stockpile surveillance and assessment play a crucial role in assuring the nuclear deterrent. Through these activities, we develop knowledge about the safety, security, and reliability of the stockpile. This knowledge provides the technical basis for our annual assessment findings and recommendations regarding the state of the stockpile. It also informs decisions made about the stockpile: from deployment and targeting to safe handling operations (routine or otherwise) and from there to development of new component and system design options. In their 2009 annual assessment letters, all three NNSA laboratory directors highlighted concerns about inadequate progress toward surveillance transformation. Former Sandia Laboratories Director Tom Hunter said, "I believe that the level of commitment to a tailored and balanced stockpile evaluation program for our aging, smaller stockpile is inadequate." Indeed, the JASON panel reached the same conclusion in their 2009 life extension study.

The Department of Energy fiscal year 2011 Congressional Budget Request places high priority on stockpile surveillance, and we understand and agree to strengthen our knowledge and confidence in the current stockpile. The Surveillance Transformation Plan was established to better align our surveillance program with the challenges of an aging and smaller stockpile. The plan aims to shift the surveillance program's focus from finding defects to acquiring deeper scientific understanding of stockpile performance margins, distributions, and trends by creating higher fidelity diagnostics and physical and computational simulation capabilities. In this new framework, we will be better able to anticipate stockpile performance degradation and to schedule required actions. Yet, although essential, a strong surveillance program is only one component of stockpile management into the future. The life extension programs are another component.

THE LIFE EXTENSION PROGRAMS

The B61 Life Extension Program

The NPR Report concluded that the United States will "proceed with full scope life extension for the B61 bomb including enhancing safety, security, and use control" (p. xiii). This is the most immediate stockpile challenge for Sandia. For this life extension, we are deliberately building multidisciplinary teams of both highly experienced staff and new talent, sustaining the necessary knowledge in the management team, providing an optimal teaming environment, ensuring that facilities are ready for the work, and piloting new processes that will benefit our life extension work.

Nevertheless, we find ourselves in a state of urgency, with a demanding schedule and expansive product requirements. The primary driver for the schedule of the B61 LEP is the fact that critical nonnuclear components are exhibiting age-related performance degradation. For example, the radar in the B61, which includes the now infamous vacuum tubes, must be replaced. In addition, both the neutron generator and a battery component are fast approaching obsolescence and must be replaced. A secondary driver for the schedule is the deployment of the F35 Joint Strike Fighter, which requires a new digital interface for the B61. Replacing the three aging components and adding the new digital interface represent the absolute minimum approach to this LEP. However, it is my judgment that we need to approach this LEP with a resolute commitment to replace old nonnuclear components and field a nuclear weapon system that employs modern technologies to improve safety and security and to extend service life.

The weapon systems addressed through the LEPs of the coming two decades will be in our stockpile well into the second half of this century. The "full" scope for the B61 LEP called for in the NPR Report is a prudent approach to this life extension

that addresses aging concerns, obsolete technologies, and enhancements in safety, security, and use control. Notably, the scale of this LEP will be much larger than that of the W76 Trident II SLBM warhead LEP, which is now in production. Whereas the W76 LEP involved redesign and replacement of 18 major Sandia components, the B61 LEP involves 46 such components.

To extend the lifetime of the B61, the requested fiscal year 2011 funding is critical. We must complete the design definition in fiscal year 2011 to create a firm understanding of system requirements and thus fully establish future-year budget needs. Total cost estimates for the B61 LEP are subject to change until the design definition and requirements are finalized.

We also have considerable technology maturation work to perform in fiscal year 2011. Technology maturation is a rigorous approach we apply to developing new technologies, from the earliest conceptual designs through full-scale product realization and ultimately insertion into the stockpile. We use a construct of technology readiness levels, first implemented at the Department of Defense and then NASA, and implement a series of technical and programmatic reviews to ensure that new technologies reach the appropriate maturity level before they are used in a life extension baseline design. For the B61 LEP, we have 13 major categories of technology maturation work underway. Our cost estimates for fiscal year 2011 in this area depend heavily on the progress we are trying to make in fiscal year 2010. I am therefore concerned that, if the requested fiscal year 2010 reprogramming is not implemented, significant additional risk will be introduced into our fiscal year 2011 efforts on the B61 LEP. For example, we began fiscal year 2010 by staffing up our B61 LEP team to position ourselves for strong performance in fiscal year 2011. Specifically, we started fiscal year 2010 with 139 full-time equivalent employees for the B61 LEP, and that number peaked in April at 192. Now the numbers are declining in the absence of fiscal year 2010 reprogrammed dollars and concern over fiscal year 2011 continuing resolution. Unless this situation changes, we will enter fiscal year 2011 with roughly 50 percent of the staffing level that was originally intended for this critical program.

The possibility of a prolonged continuing resolution for fiscal year 2011 is a real concern. The funding growth required for the B61 LEP from fiscal year 2010 to fiscal year 2011 is so essential that a continuing resolution funding level referenced back to fiscal year 2010 will almost surely require removing staff from the program, a slip in the fiscal year 2017 target for first production unit, or even a down-scoping of the program. The LEP schedule and scope are also, of course, heavily dependent on the appropriated funding in fiscal year 2012 and beyond. Fiscal year 2011 funding is needed to get this program off to a good start, but enduring multiyear sustained funding is required to bring this program to successful completion. The success of the B61 LEP also requires a fully supported production complex with particular importance placed on the Kansas City and Pantex Plants.

Other Life Extension Programs

The B61 bomb is our current focus, but certain reentry systems in our stockpile also require near-term life extension activities. The NPR Report recommended "initiating a study of LEP options for the W78 ICBM warhead, including the possibility of using the resulting warhead also on SLBMs to reduce the number of warhead types" (p. xiv). The Department of Energy fiscal year 2011 Congressional Budget Request includes funding for a W78 LEP. Based on the guidance in the NPR Report, the planning for this LEP will also examine the opportunities and risks associated with the resulting warhead referenced above.

At the request of the Office of the Secretary of Defense, we completed a feasibility study for a common integrated arming, fuzing, and firing (AF&F) system. Using an envelope of the requirements for the W78 and the W88, and even the W87 and the U.K. system, our study concluded that this approach was technically feasible, including improvements in safety and security enabled by miniaturization of electronics. Savings in weight and volume, at a premium in reentry systems, can be used for those additional safety and security features. The study results have been briefed to the Nuclear Weapons Council and are being used to inform decisions regarding the scope, schedule, and interplay between the W78 and W88 life extensions.

A RETROSPECTIVE OF STOCKPILE STEWARDSHIP

My confidence in our ability to successfully execute the life extension programs is based on the suite of tools and capabilities that have resulted from the investments made in stockpile stewardship. For the first 15 years of the Science-Based Stockpile Stewardship Program, creating the scientific tools and knowledge required in the absence of underground nuclear testing was a compelling grand challenge for

the U.S. nuclear weapons program. While the moratorium on underground nuclear testing had a more direct impact on Los Alamos and Lawrence Livermore National Laboratories than on Sandia National Laboratories, hundreds of experiments have been run on Sandia's Z accelerator, providing critical experimental data that are tied directly to the milestones of NNSA's Predictive Capability Framework road map. Advances in our pulsed power capabilities are supporting the Advanced Certification, Dynamic Materials Properties, and Primary and Secondary Assessment Technologies programs.

At Sandia, the primary impact of the moratorium on underground nuclear testing was the need to create tools and acquire the knowledge necessary to sustain confidence in the radiation hardness of our designs. We created advanced stockpile stewardship tools and effectively applied them to our annual assessment of the stockpile and to the qualification of the W76–1 life extension program. Those tools gave us the understanding and knowledge to assess with confidence the state of the stockpile. Advances in our computational tools and improved experimental capabilities, coupled with high-fidelity diagnostics for model validation and improved characterization of test results, provided this new understanding.

Looking back at the Science-Based Stockpile Stewardship Program, it is clear that we collectively understood the magnitude of the change that needed to occur in the nuclear weapons program to address the moratorium on underground nuclear testing. What we at Sandia perhaps did not fully appreciate at the time was the impact that the end of the Cold War would bring to the vitality of our system and component design community. During the Cold War, we were pursuing simultaneously as many as 14 full-scale weapon development programs. Since 1992, we have had a total of only two programs of similar scale: the W76–1 and the W80–3 LEPs. The latter was cancelled in 2005. Thus, as we began to implement stockpile stewardship in the early 1990s, our weapon systems development workload dropped dramatically, and that meant less work for systems engineers and component designers. At the same time, technological advances were happening that would bear directly on the products within Sandia's responsibility.

As stated earlier, the products Sandia designs and engineers are highly specialized for the unique demands of nuclear weapons; however, they are related to commercial products because of similarities in underlying technologies. To express this idea differently, our components have a point of reference in commercial technology. This reality bears directly and significantly on Sandia's responsibilities as we embark on the next era of stewardship.

The pace of technological advances in recent decades has been staggering. Let me give just one example. In 1983, we were embarking on the full-scale design and development for the W88 Trident II submarine-launched ballistic missile (SLBM) warhead, which is the last newly designed warhead to have entered the stockpile, and it took advantage of the microelectronics available at the time. That year, the cell phone industry, also relying on microelectronics, was proud of the first network in the United States: 7,000 phones, each weighing about 2 pounds. In the time that has passed since, miniaturization and functional density of microelectronics have taken a quantum leap. Today there are about 285 million cell phones, each weighing about 3 ounces. Such technological advances mean simply that some of the technologies on which Sandia products are based have become radically more advanced than they were the last time we built a large number of nonnuclear components for weapons.

The strong tie between the products developed by Sandia and those developed by the private sector is both a challenge and an opportunity—a challenge, because we must have the right set of people, skills, production equipment, and an up-to-date technology base at a time when budgets are not predictable; yet an opportunity, because it keeps us agile, adaptable, in tune with the needs of the Nation and because modern technologies provide opportunities for improvements in stockpile safety and security. This strong tie manifests itself in several ways. To reduce cost and whenever the required functionality is available from a trusted supplier in the commercial sector, we incorporate commercial off-the-shelf parts into our products. Furthermore, for the parts we must manufacture (for example, specialized microelectronics), only modern production tooling and equipment can be readily maintained. Perhaps most important is the fact that we can attract the best and brightest new graduates when we can offer them challenging innovative projects that use the latest technologies, which they understand and on which they have been trained.

Cyber risk is another aspect of technological advances that we must consider. Since the 1980s Sandia has pioneered the use of vulnerability assessments to determine systematic cyber weaknesses in command and control and surety systems. We believe it is vital to the next generation of life extension programs that cyber risk be assessed and capabilities developed to mitigate the dangers.

Workforce

The demographics within Sandia's nuclear weapons program clearly reflect both the strengths of the Stockpile Stewardship Program and the challenges of a period with few full-scale weapon design programs. We have attracted the very best scientists, engineers, and technologists to the laboratories with large-scale science-based engineering programs that bring together computational with experimental test capabilities. However, retaining talent in our weapon and component design community has been challenging. The uncertainty surrounding the requirements for the future stockpile resulted in programmatic instability and lack of full-scale engineering development programs. In their recent life extension study, the JASON panel noted that a "lack of program stability" threatened the continued strength of the stewardship program.

While we must rise to meet near-term challenges of the Stockpile Stewardship Program, we also must establish the basis for long-term stability. For Sandia, stability should be viewed in the context of three pillars: people, infrastructure, and broad national security work. The NPR Report highlighted the importance of the first two of these: "In order to remain safe, secure, and effective, the U.S. nuclear stockpile must be supported by a modern physical infrastructure ... and a highly capable workforce" (p. xiv).

Today, 37 percent of the experienced technical staff in Sandia's weapon system and component design organizations are over the age of 55. Their remaining careers will not span the upcoming life extension programs. This reality puts a huge premium going forward on stable, multiyear, large-scale LEPs that provide opportunities for our new technical staff to work closely with our experienced designers on a full range of activities—from advanced concept development to component design and qualification, and ultimately to the production and fielding of nuclear weapon systems. The team we are assembling for the B61 LEP is representative of the new multidisciplinary approach we will take to ensure that: (1) the powerful stewardship tools developed through our Nation's investment and applied effectively to stockpile assessment are adapted going forward to meet the needs of the design of weapon system architectures and components; and (2) the latest technologies and innovative designs are coupled with rigor that comes from experience. To give only one example, recently validated thermal models developed by the Stockpile Stewardship Program were applied to the design of thermal batteries for the B61 LEP. These models allowed us to identify a nearly twofold increase in battery run time that could be achieved with a simple material substitution.

New tools and modern technologies, coupled with our management vision for the engineering environment required for success, will foster innovation; lead to safety and security for the upcoming LEPs; and provide foundational technical and scientific strength to support the stockpile over the long term.

Essential Capabilities and Infrastructure

Sandia's capabilities are essential to its full life cycle responsibilities for the stockpile: from exploratory concept definition to design and qualification, and ultimately through ongoing stockpile surveillance and assessment. Let me point out a few examples.

The NNSA complex transformation plan designated Sandia as the Major Environmental Test Center of Excellence for the entire nuclear weapons program. The facilities and equipment we have in this area are extensive: (1) 20 test facilities at Sandia-New Mexico; (2) the Tonopah flight test range in Nevada; (3) the Weapon Evaluation Test Laboratory in Amarillo, TX; and (4) the Kauai test facility. We use environmental test capabilities to simulate the full range of mechanical, thermal, electrical, explosive, and radiation environments that nuclear weapons must withstand, including those associated with postulated accident scenarios.

Significantly, capabilities originally developed in Sandia's nuclear weapons program also support other national needs. For example, the Thermal Test Complex, one of our major environmental test capabilities, is a $38 million world-class suite of facilities supporting a full spectrum of technical research: from the basic studies of fire chemistry and model validation, to full-scale highly instrumented simulations of weapon system safety performance in fuel fire accident scenarios. The Thermal Test Complex was funded by Test Capabilities Revitalization (TCR) Phase 1, came online in 2006, and immediately provided necessary capabilities for the W76–1 LEP. Interestingly, expertise in flow visualization, plume evaluation, thermal sciences, and fire sciences developed at the Thermal Test Complex was recently also used in an area unrelated to nuclear weapons: the BP oil disaster.

Today, TCR Phase 2 funding is needed to renovate our suite of mechanical environment test facilities, many of which were commissioned in the 1950s and 1960s.

These facilities will support the design and qualification of the B61 life extension and subsequent LEPs.

Another unique capability that Sandia stewards for the nuclear weapons program and also for DOE's nonproliferation payloads is the microelectronics research and fabrication facility, where we design and fabricate an array of unique microelectronics, as well as specialty optical components and microelectromechanical system, or MEMS, devices. This capability includes a national "trusted foundry" for radiation-hardened microelectronics. We have been providing microelectronic components to the nuclear stockpile at the highest level of trust since 1978 and to DOE's nonproliferation payloads since 1982. In 2009, Sandia received Class 1A Trusted Accreditation (the highest level of accreditation) from the Department of Defense for Trusted Design and Foundry Services and is the only government entity with this accreditation for both design and foundry operations. We must recapitalize the tooling and equipment in our silicon fabrication facility, much of which dates back about 15 years in an industry where technology changes almost every 2 years. Recapitalization will ensure production of the radiation-hardened components required by the upcoming reentry-system life extension work.

Expertise in materials science is required to engineer new materials for future stockpile applications, create the physics-based understanding of material aging in the current stockpile, and project potential performance impacts. Our materials science capabilities are essential to our national security mission. Yet, past funding constraints in Sandia's nuclear weapons program led to significant erosion in materials science. That erosion might have been even more serious had Sandia not successfully leveraged materials science research in support of its broader national security role. We are currently working with NNSA on centralizing our nonnuclear materials science funding and thereby enabling a more integrated capability.

We also have a critical but eroding capability in radiation effects sciences. It is my belief that the U.S. strategic arsenal should continue to maintain its requirements for radiation hardness. By its very nature, U.S. nuclear deterrence requires a nuclear arsenal that cannot be held at risk or denied by any adversary. Relaxation in the strategic hardness of our designs could be interpreted as a weakening of our deterrent posture.

Nuclear survivability is best addressed through intrinsic design properties and cannot be added through modifications to the stockpile once a threat changes. During the era of underground nuclear testing, we exposed Sandia components to nuclear environments as part of the qualification process. Today, in order to create a fundamental understanding of the phenomena and failure mechanisms of concern, we simulate nuclear environments in aboveground test facilities, create computational models of the experiments, and then validate the computational models with experimental results.

However, experimental and modeling and simulation capabilities that allow us to assess with confidence must be sustained. In the recent past, funding in this area has been erratic, resulting in difficulties managing the program and sustaining the critical skills of our staff in the important area of nuclear effects simulation.

Broad National Security Work

Today, national security challenges are more diverse than they were during the Cold War. The NNSA laboratories are uniquely positioned to contribute solutions to these complex national security challenges. In the new environment, synergistic work supporting other national security missions is crucial. Indeed, as mentioned in the fiscal year 2011 Stockpile Stewardship Management Plan Summary, "while NNSA nuclear weapons activities are clearly focused on the strategic deterrence aspects of the NNSA mission, they also inform and support with critical capabilities other aspects of national security" (p. 7).

I will refer to only one of many success stories at Sandia (others come from materials science, microelectronics, and computer science), showing how capabilities for the nuclear weapons program benefit from synergy with other national security programs. It is the story of our work in radars.

Competency in specialized radar applications is a required capability for the nuclear weapons program. As a result of initial investments in radar fuze capability for nuclear weapons, in 1983 we began working on miniature radars based on synthetic aperture concepts for nuclear weapons and broader national security activities. In 1985 we became involved in a program for the Department of Defense to develop a high-resolution, real-time synthetic aperture radar (SAR) suitable for use in unmanned aircraft. Sandia flew the first such SAR prototype in 1990. Follow-on work sponsored by the Department of Defense reduced the size and cost of SAR systems, improved resolution, and significantly expanded the applications and military benefits of radar. Partnerships with industry have transitioned each generation of

the technology into field-deployable systems. Sandia-designed airborne SAR systems are now widely used for real-time surveillance by the U.S. military.

In this example, the original radar competency of the nuclear weapons program was improved by this work for the Department of Defense. The resulting advanced radar competency made it possible to apply new technology to the updated fuzing system for the W76–1 life extension. This updated fuzing system would not have been possible without the competency that was maintained and advanced by work for the Department of Defense.

VERIFICATION AND MONITORING

Sandia has had a long tradition of ingenuity and engineering excellence in developing technologies for verification and monitoring to support efforts in nonproliferation and nuclear security as demonstrated, for example, by our successful record of involvement with international treaties: from the VELA Satellite Programs (1960s) to the Intermediate-Range Forces Treaty (INF, 1987) and from there to the Strategic Arms Reduction Treaty (START, 1994). The New START treaty signed in Prague in April 2010 aims to enhance predictability and stability and thus security, and verification activities will monitor compliance with limits and other obligations set forth in the treaty.

While details of Sandia's activities in verification can best be presented in a classified environment, I will state here that we have carefully reviewed the New START treaty and understand the limits and obligations as well as the changes to the inspection protocols. Sandia will continue to support the government by providing the best technical solutions and expertise required. The current language of the New START treaty mentions the radiation detection equipment, which was developed and manufactured at Sandia and used in the previous START, as a key piece of equipment for verification purposes under the terms of the new treaty. In addition, between September 2009 and April 2010, two Sandia experts served as technical advisors on the delegation that negotiated the New START treaty.

CONCLUSIONS

As stated in the NPR, "as long as nuclear weapons exist, the United States will maintain a safe, secure, and effective nuclear arsenal" (p. iii). The upcoming decade will be demanding as we conduct a number of life extension programs under compressed schedules, modernize our aging facilities, and invest in human capital.

Within the context of the nuclear weapons policy presented in the NPR Report and the collective guidance for implementation provided in the fiscal year 2011 Stockpile Stewardship and Management Plan, Section 1251 Report, and the Department of Energy fiscal year 2011 Congressional Budget Request, and under the New START treaty terms, I am confident that Sandia can provide the required support for the Nation's nuclear deterrent. That confidence is based on our assessment of the stockpile management requirements against our mission and product space and our capabilities.

The New START treaty, if ratified and entered into force, would not constrain or interfere with the upcoming stockpile life extension imperatives. It would not change our planned approach or the tools we will apply. It would not limit the required introduction of modern technologies into existing warhead designs and the realization of the attendant benefits. However, it would reinforce the imperative to ensure a modern stockpile and a strong, responsive infrastructure as we move toward a smaller nuclear arsenal.

As a whole package, the documents describing the future of U.S. nuclear policy represent a well-founded, achievable path forward, which I understand and support. However, as we stand on the threshold of the new era of stockpile stewardship and management, we must recognize the challenges inherent in this framework. A significant body of work will be required to sustain the deterrent into the next two decades, and we must ensure that resources are commensurate with the requirements and expectations. The administration's fiscal year 2011 budget request reflects a strong alignment among the White House, the Department of Defense, and the NNSA, and it recognizes the magnitude of our future work scope. The fact that the three national security laboratory directors were invited to speak before you today is a clear indication of the leadership role of Congress in authorizing a path forward for U.S. nuclear deterrence. Our success in sustaining the stockpile rests on program stability, multiyear sustained funding, a clear national commitment to the U.S. nuclear deterrent, and the opportunity to perform innovative technical work in the service of the Nation.

Chairman LEVIN. Thank you very much, Dr. Hommert. We thank all of our lab directors and their staffs for the great work that you do.

Let's see if we could finish—I'm not sure we can—by 11 o'clock, but let's try, and we'll try with a first round of 6 minutes towards that goal. If we don't finish, we'll just come back after the vote.

The NPR states a preference for refurbishment or reuse as I understand it. Is that correct?

Dr. ANASTASIO. Yes, sir.

Chairman LEVIN. Of the three Rs.

Now, does that preference constrain the labs in any way in your review of life extension options? Dr. Anastasio?

Dr. ANASTASIO. I don't believe that overly constrains us, Senator. We still have the directive to look at the full range of options as we consider the requirements and the best technical path forward. As I said in my opening comments, I feel it's my obligation, not just the request but my obligation, to bring forward the best technical ideas in every case. So it's not a perfect solution, but I think it's one that gives us the flexibility we need, that we can have adequate levels of confidence in, to stimulate the workforce to do the creative and innovative things they always do to support such a national important issue.

Chairman LEVIN. Dr. Miller, do you basically agree with that?

Dr. MILLER. Yes, sir, I agree with Dr. Anastasio's statement.

Chairman LEVIN. Dr. Hommert, would you agree with that?

Dr. HOMMERT. Yes, I agree. I want to point out that for our components, the non-nuclear components, we are typically in a replacement mode by the very nature of it, and reuse where appropriate and refurbishment as well.

Chairman LEVIN. It's been alleged by some that the NPR is going to stifle creative and imaginative thinking. Do you agree with that, Dr. Anastasio?

Dr. ANASTASIO. No, sir. I think that by looking at the full spectrum of options on a case-by-case basis, that's just the opportunity we need to stimulate the creativity of our workforce.

Chairman LEVIN. Dr. Miller?

Dr. MILLER. I very much agree with Dr. Anastasio. As he said, I really do believe very strongly that it is my responsibility to make sure that the workforce at the laboratory considers the full range of options. They will naturally want to do that on their own.

Chairman LEVIN. That you feel that that is what you have the authority to do?

Dr. MILLER. Yes, sir. I believe we have not only the authority, but I believe we also have the direction to do that.

Chairman LEVIN. Dr. Hommert?

Dr. HOMMERT. Yes, I agree.

Chairman LEVIN. Dr. Schwitters, the JASON Life Extension Study Panel found that the lifetime of today's nuclear weapons could be extended for decades with no anticipated loss in confidence by using approaches similar to those employed in life extensions to date, and that's a critically important conclusion that appears to confirm that the current weapons in the stockpile will be able to continue to meet military requirements and maintain safe, secure,

and reliable using one of the three R approaches that you've all mentioned now.

Did the JASON study find that the replacement option would introduce the most significant degree of change in the stockpile?

Dr. SCHWITTERS. I'd like to take a narrower answer on that.

Chairman LEVIN. Sure.

Dr. SCHWITTERS. Again, some of the systems are being replaced successfully, and they stand the scrutiny that the labs give them and that we've seen in coming back. So I would like to say I think it's very important that the labs explore these replacement strategies and they may be needed in some future requirements. But I think it's our feeling that basing further work on the knowledge base that exists through the other two strategies is the path of least risk at this point.

Chairman LEVIN. Thank you.

Now, our lab directors have all mentioned shortfalls in previous years' budgets. As I understand it, there were significant layoffs in the fiscal year 2008 budget year, that the budgets in fiscal year 2009 and fiscal year 2010 provided some small financial improvement, although I understand that some layoffs continued in fiscal year 2009.

First of all, you can comment on that when answering the question. The budget in fiscal year 2011 as I understand it will allow you to begin to recover from the shortfalls in previous years' budgets; is that correct, Dr. Anastasio?

Dr. ANASTASIO. Mr. Chairman, since 2006 at LANL we've reduced the workforce by over 2,200 people. That's a significant fraction of the workforce. Yes, with the proposed 2011 budget by the administration that will in fact stabilize the workforce and I think put us back on a track that starts to improve the situation that we've been seeing in recent years.

Chairman LEVIN. Dr. Miller?

Dr. MILLER. Yes, sir. At LLNL we have reduced the workforce since 2007 by about 2,000 people. About a third of those were highly-trained scientists and engineers, so that has been a significant concern. The fiscal year 2011 budget starts us back in the right direction. It allows us to grow a little bit with inflation, and puts us back on the right course. It does not include all of the things that we will need over the long term, but it is an extraordinarily good first step.

Chairman LEVIN. Thank you.

Dr. Hommert?

Dr. HOMMERT. Yes, since the period from 2006 through 2008 at Sandia we've reduced by about 800 the staff associated with the core nuclear weapons activities at the laboratories. The majority of those staff moved to other national security imperatives that we are working on.

When I look at the fiscal year 2011 budget, for us the change is dominated by the commitment we have to execute the B61 LEP, which needs to begin immediately, and that budget is adequate for us to begin that effort.

Chairman LEVIN. Thank you very much.

Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

A letter, which I'd like to submit for the record, dated May 19, 2010, to Secretaries Gates and Chu from 10 former and well-respected lab directors, cited significant concern with the guidance set forth in the administration's NPR to give strong preference to options for refurbishment or reuse. The former directors state that such guidance imposes unnecessary constraints on our engineers and scientists and that, based on their experience as former lab directors, they believe that this higher bar for certain life extension options will stifle the creative and imaginative thinking that typifies the excellent history of progress and development at the national laboratories, and indeed will inhibit the NPR's goal of honing the specialized skills needed to sustain the nuclear deterrent.

[The information referred to follows:]

May 19, 2010

The Honorable Robert M. Gates
Secretary
U.S. Department of Defense
The Pentagon, Room 3E880
Washington, DC 20301-0001

The Honorable Steven Chu
Secretary
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Dear Secretaries Gates and Chu,

The recently released Nuclear Posture Review (NPR) outlines the United States' goal to maintain a safe, secure and effective arsenal while reducing the number of weapons and their role in national security strategy. While we accept many of the policies of the new NPR, as former directors of the national nuclear weapons laboratories, we write to share our concerns about certain elements of the NPR and the FY11 budget. We urge you to work to address these concerns quickly.

We strongly agreed with the Commander, USSTRATCOM, General Kevin Chilton who testified to Congress on March 16, 2010 that "we should not constrain our engineers and scientists in developing options on what it will take to achieve the objectives of the SMP, and let them bring forward their best recommendations for both the President and for the Congress to assess as to what is the best way forward." Unfortunately, we are concerned that language in the NPR imposes unnecessary constraints on our engineers and scientists when it states that "the United States will give strong preference to options for refurbishment or reuse," and that the replacement of nuclear components "would be undertaken only if critical Stockpile Management Program (SMP) goals could not otherwise be met, and if specifically authorized by the President and approved by Congress."

Based on our experience as former laboratory directors, we believe this "higher bar" for certain life extension options will stifle the creative and imaginative thinking that typifies the excellent history of progress and development at the national laboratories, and indeed will inhibit the NPR's goal of honing the specialized skills needed to sustain the nuclear deterrent. If these skills are not exercised, they will be lost. Moreover, the United States is already taking on a certain amount of risk by not testing its nuclear weapons. Failure to preserve nuclear weapons skill sets will add further risk, and unnecessarily so.

We vigorously agreed with the decision by Congress last year to require the President to produce a plan for the modernization of the U.S. nuclear weapons enterprise, as further stockpile reductions are contemplated. We believe this is a critical and logical requirement, though we again note that, in our opinion, pursuing the objectives of maintaining a safe, secure and reliable stockpile are more difficult and risky if the nuclear weapons experts believe they are not really

free to pursue all options necessary for life extension. We believe that these options can be pursued without transgressing the stated NPR goal to "...not support new military missions or provide new military capabilities."

However, we believe there are serious shortfalls in stockpile surveillance activities, personnel, infrastructure, and the basic sciences necessary to recover from the successive budget reductions of the last five years. A particular concern is the FYDP which is inadequate for the acquisition of the multibillion dollar plutonium research and production facilities at Los Alamos and the uranium processing facility at Oak Ridge. In addition, the DOE's track record in acquiring facilities for processing hazardous material reveals serious requirements creep and management inability to avoid major escalation in costs. The consequence has required serious reductions in the funds for science, engineering prototyping, laboratory tests, etc. We are hopeful that you will work with Congress to address the shortfalls in the FY11 authorization, the FYDP and appropriations processes.

One thing we know for certain is that, at this stage, one or two years of additional funding will not be sufficient to put the U.S. nuclear weapons enterprise back on a sound footing. We must have a robust plan to fund the modernization of the U.S. nuclear deterrent on the basis of what is necessary to have a second-to-none deterrent at the lowest possible risk, especially if the United States chooses to continue to observe a testing moratorium. The plan to accomplish these goals must be adequately funded over the next decade at least. While we are encouraged by your commitments, we are deeply concerned that most of the significant investments promised are not available until the outyears of the plan. We are concerned, having received commitments of support before, that Congress and the President will once again promise a great deal today, and then quickly forget about the nuclear weapons enterprise until something breaks.

We stand ready to work with you in any way we can.

Sincerely,

Harold Agnew

Robert Kuckuck

John Browne

Michael May

John Foster

Peter Nanos

Sig Hecker

John Nuckolls

Don Kerr

Paul Robinson

Senator McCAIN. I take it from the witnesses' statements today you disagree. Are these 10 former lab directors misinformed, wrong, or why does there seem to be some difference of opinion here? Beginning with you, Dr. Anastasio.

Dr. ANASTASIO. Thank you, Senator. It's certainly true that there are restrictions in the NPR on how to proceed forward with engineering development. But I still believe that it's very clear that we have both the authority and the responsibility to explore on a case-by-case basis what's the best technical approach for each weapons

system to extend its life well into the future, to include the full range of options that will spark and stimulate the innovation and creativity of our workforce.

Recall, where we've been is that we have not pursued even reuse as a strategy in recent years. So I think opening these options up will be very important to the workforce for us to be able to train and transfer knowledge to a newly, highly capable workforce that we will need for the future.

Senator MCCAIN. I understand all that and I appreciate it. But the 10 directors are misinformed or you just have a simple disagreement?

Dr. ANASTASIO. It's a matter of emphasis, that certainly having no restrictions would be the more perfect solution, but I believe with the way the NPR is written that we have an adequate level of technical flexibility to carry out our mission.

Senator MCCAIN. Dr. Miller.

Dr. MILLER. Yes, sir. Thank you, Senator. I believe that the concern expressed by the former lab directors is obviously a legitimate concern. It's a concern that I have. However, I agreed with Dr. Anastasio; I believe that the situation we have is a workable one. As I said, it is my responsibility to make sure that the full range of options and creativity are exercised by our workforce, by our designers, in bringing forth for consideration by Congress and the administration for all of the potential options for improving the stockpile in the future. So I believe it's a workable situation.

Senator MCCAIN. So you agree, but you think it's workable? Is that sort of your answer?

Dr. MILLER. Again, as I said, it is a concern. It's something I pay a lot of attention to. I believe we can work with the situation as it's currently described.

Dr. ANASTASIO. I would agree with that.

Senator MCCAIN. Thank you.

Dr. Hommert.

Dr. HOMMERT. I think this issue sits largely in the space of my colleagues because it mostly focuses on the nuclear components. From our standpoint, the most dominant issue is that when we look at the next decade and the B61 LEP, the W78 LEP, that we commit to a full-scope effort on those, first in largely a refurbishment space, using the language applying to the nuclear package, and in the reuse space on the W78 LEP, and that we commit to full-scope replacement of non-nuclear components.

Senator MCCAIN. I understand your position. Now I'd like the answer to the question.

Dr. HOMMERT. I believe that, from my perspective, there is sufficient intellectual challenge and opportunity for innovation that our staff can—in the context of work over the next decade, that affords the strength of our deterrent and the intellectual capability of the staff; that language is not restrictive in that regard.

Senator MCCAIN. Thank you.

Dr. Schwitters.

Dr. SCHWITTERS. Sir, I disagree with the statement in the former directors' letter. I think it fails to properly account for the knowledge that has been a result of ongoing stockpile stewardship and into the future. In working with the labs and knowing the people

as we know them at the labs, there are tough technical scientific challenges that are well within the scope of the NPR, that need to be met, and, I think, under this question of stability in the workforce that came up before, offers opportunities for people to really grow professionally and to explore the full range of physically sensible solutions.

So I don't agree with them, and I've spoken with some of the directors on that list about it.

Senator MCCAIN. Thank you, Dr. Schwitters. I wasn't asking about knowledge or challenges. I was asking about whether this policy would constrain our ability to replace as well as to refurbish.

But you've also addressed my next question, and it's a very delicate question as to whether you are pleased at the increased commitment of funding and whether that is sufficient in order to get the job done to comply with our Nation's national security needs?

I am pleased with the commitment to increased funding, as I know you are. But there is, I think, a large question that looms out there, Mr. Chairman, of whether that is just a welcome increase, which we all welcome, but whether it is also sufficient to meet the needs, the increased needs we have in compliance with the New START treaty.

I thank you, Mr. Chairman. I thank the witnesses.

Chairman LEVIN. Thank you very much, Senator McCain.

Senator Lieberman.

Senator LIEBERMAN. Thanks, Mr. Chairman.

First let me thank the four witnesses for the service that you do to our country. I think it is largely unknown, unappreciated, but extremely critical to the security of the American people and the security of a lot of people elsewhere in the world.

Look, we all wish that we lived in a world without nuclear weapons, but wishing does not make it so. As you look around the world, it seems that the conflicts between people and nations grow and that, once again, the nuclear weapons capacity seems to be growing. That is, after the reduction after the collapse of the Soviet Union.

So while I for one am in the process of reviewing the New START treaty and hope that I can be in a position to vote to ratify it, it seems to me that, based on what we know about the reality of the world today, that as we reduce the number of deployed nuclear weapons in our stockpile, we have to make sure that, to put it in simplistic terms, they work. That's what this really is all about.

Incidentally, as you well know, just to state for the record, there are a lot of people in the world who depend on the safety, security, and effectiveness of America's nuclear stockpile for their own security. In fact, the safety, security, and effectiveness of our nuclear stockpile is one of the major inhibitions or blocks to more nuclear proliferation, because there are nations in Asia and the Middle East particularly that have not developed their own capacity because they rely on our protection. So what we're talking about here is really important.

Dr. Hommert, you said something that I thought was really important, which is that most of the weapons—because a lot of this is education or re-education for Members of Congress—most of the

weapons in the current stockpile—I'm quoting from you—"were designed at a time when long design life was not typically a high priority design requirement."

I heard from someone who is an expert in this field that today the average age of the nuclear weapons in our stockpile is older than it's ever been before. Is that right?

Dr. HOMMERT. Yes, sir, that's correct.

Senator LIEBERMAN. So that's part of the pressure on us to make the kinds of investments that we're talking about and that the four of you have asked for, correct?

Dr. HOMMERT. Yes, Senator.

Senator LIEBERMAN. Other nations have gone in other directions in the development of their nuclear weapons stockpiles, correct?

Dr. HOMMERT. Yes.

Senator LIEBERMAN. Okay. Now let me go to Dr. Miller. You point out in your prepared statement that the NNSA's budget crunch that we've imposed on you in recent years has—and I'm going to mention two parts of what you said—"postponed important deliverables in science, technology, and engineering." To the extent that you can in open session, Dr. Miller, give us a little more detail on what you meant.

Dr. MILLER. Yes. Part of the science, technology, and engineering program, what we call the science-based stockpile stewardship program, is intended to understand in a more fundamental way the workings of a nuclear weapon. It is in many respects the key intellectual challenge. The delivery of that understanding has been delayed from what was originally anticipated because of the slower pace of work.

An example of what I'm talking about, again in an unclassified form, a scientist from LLNL whose name is Omar Hurricane this year received the E.O. Lawrence Award from Secretary Chu. The details are classified, but he received that award for proposing a theoretical solution to one of these weapons physics challenges. That theory has yet to be validated because the experiments that would validate that theory have not yet been done. So that's an example of the delays that I was talking about.

Senator LIEBERMAN. The next phrase in your statement is that the budget crunch you've been under "has delayed resolution of identifiable stockpile issues." Did you cover that in your answer to the first one?

Dr. MILLER. It's similar. The more detailed answer is we look at the stockpile every year, all three labs, the plants. We find what we would call politely "anomalies," things that are different than we expect them. We have to answer the question of does that matter? Again, it's like a piece of rust on your car. It matters where it is and how big it is. The time for resolving those issues has been longer than I think is justified.

Senator LIEBERMAN. One of the bottom line questions for me, anyway, in this matter is that, since we're discussing the sustainability of our nuclear deterrent under New START, I want to ask the three directors the most objective question based on budget that I can, which is about fiscal year 2011. Implicitly, I'm asking about the kinds of goals that are set for longer-range funding.

If Congress fails to provide the increased funding requested in the fiscal year 2011 budget and described in the section 1251 report, are you certain that our national laboratories will be able to continue to certify the safety, security, and effectiveness of the smaller stockpile envisioned in New START without testing?

Dr. Anastasio?

Dr. ANASTASIO. Senator, if that were the case I would be very concerned about the future. One of the things that has been happening in recent years with the budget scenarios that we've faced is that, with the focus on the stockpile, the urgency of the near term, the concerns about the state of our facilities, we've been squeezing more and more on the science, technology, and engineering part of the budget. That is the investment in the long term. The activities that we're able to carry out today are based on the investments we made 5 and 10 years ago.

Senator LIEBERMAN. My time is actually up, so let me ask a quick question. Are you concerned that if we don't meet the funding increase goals that we're talking about for fiscal year 2011 and beyond that you may reach a point where you won't be able to certify the safety, security, and effectiveness of our nuclear stockpile without testing?

Dr. ANASTASIO. I'll be very concerned about my ability to do that. We will be in a position where we're not looking at the issues, and so if you don't look you don't know what the issues are. The tools that we have available for us may well not be adequate to answer the questions that are before us.

It's both important what the near-term budget looks like, but it's important that we understand the funding over the full life of the program, which in this case is several decades long.

Senator LIEBERMAN. Right.

Dr. Miller, Dr. Hommert, can you give a quick answer? I apologize because I know it's a big question.

Dr. MILLER. I would point you to some testimony that I gave a couple of years ago to the Senate, in which I said that if the funding trends continue it is my judgment that the fundamental premise of stockpile stewardship is at risk.

Senator LIEBERMAN. Thank you.

Dr. MILLER. I believe that's true.

Senator LIEBERMAN. Thank you.

Dr. Hommert?

Dr. HOMMERT. Without the fiscal year 2011 request, we will see immediate impact on the strength of our surveillance program and very much on our ability to sustain the B61 as a viable weapons system through the decade.

Senator LIEBERMAN. Thank you all.

Thanks, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Lieberman.

Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman.

Mr. Chairman, we have sent a letter to you requesting a hearing on the New START. I just want to get this in the record. I also serve on the Senate Foreign Relations Committee. We've had, I think, about 12 hearings. We've had 25 witnesses. Although two of the witnesses were kind of open; they had some objections—that

was Robert Joseph and Eric Edelman; we all know them—the other ones, there was not one witness who was opposed to the New START treaty.

So the request I have—and that has been signed by some 11 members—is that we hold a hearing where we will have some of the witnesses, and we even made some suggestions. So I'm hoping we'll be able to do that.

[The information referred to follows:]

United States Senate

WASHINGTON, DC 20510

June 30, 2010

The Honorable Carl Levin
United States Senate
Chairman
Senate Armed Services Committee
Room SR-228
Russell Senate Office Building
Washington, D.C. 20510

The Honorable John McCain
United States Senate
Ranking Member
Senate Armed Services Committee
Room SR-228
Russell Senate Office Building
Washington, D.C. 20510

Dear Chairman Levin and Ranking Member McCain:

The Armed Services Committee traditionally has played an important role in the Senate's advice and consent to ratification of arms control treaties. As the Senate considers the New START, our committee will want to assess the strategic implications of the proposed treaty to ensure that the United States continues to maintain a strong deterrent in support of our security and that of our allies.

In addition to hearing from Administration witnesses, it is important that the Committee solicit a broad range of views on the significant issues that have a bearing on the treaty and U.S. security. These include, among others, the limitations in the treaty on missile defense and conventional prompt global strike; the implications for U.S. nuclear force structure under the proposed limitations; the consequences for strategic stability of the disparity in tactical nuclear weapons between Russia and the United States; the ability of the United States to adequately monitor Russian strategic force activities; and whether the administration and Congress is committed to the modernization of our nuclear warheads, the nuclear weapons complex, and strategic delivery systems. To address these issues, we request you consider the following potential witnesses as you plan the Committee's hearing schedule:

- Admiral Richard Mies (ret.), former STRATCOM commander
- Dr. Keith Payne, former Deputy Assistant Secretary of Defense
- Mr. Stephen Rademaker, former Assistant Secretary of State
- Ambassador David Smith, former head of Defense and Space Talks
- Dr. William Van Cleave, former strategic forces advisor to Defense and State Dept.
- Ambassador James Woolsey, former CIA Director

Should the committee solicit testimony from the directors of the national laboratories with respect to nuclear modernization efforts, we recommend that a

complementary panel be convened to receive the views of former lab directors such as Dr. John Foster and Dr. Paul Robinson.

We thank you for your consideration and look forward to working with you as the Committee continues its consideration of the New START.

Sincerely,

James M. Inhofe
United States Senator

Jeff Sessions
United States Senator

Saxby Chambliss
United States Senator

Lindsey Graham
United States Senator

John Thune
United States Senator

Roger F. Wicker
United States Senator

George S. LeMieux
United States Senator

Scott P. Brown
United States Senator

Richard Burr
United States Senator

David Vitter
United States Senator

Susan M. Collins
United States Senator

Chairman LEVIN. We're hoping also to be able to do that.

Senator INHOFE. Yes.

Chairman LEVIN. We've been working with the minority on the witnesses. The dates which——

Senator INHOFE. I appreciate that and I know you will. We went through this——

Chairman LEVIN. Well, if I could just complete my sentence.

Senator INHOFE. I'm sorry.

Chairman LEVIN. The dates which we proposed, they were not able to make it. So we are working closely with minority and minority staff to make it possible, because we also want to make that happen. So we'll continue to try to work with those witnesses.

Senator INHOFE. Mr. Chairman, this is not any way a partisan suggestion, because we went through this same thing on the Law of the Sea Treaty and that was actually proposed during the Bush administration, and we had from the Senate Foreign Relations Committee no one opposed to it. But we did then hold very productive hearings on that. So I appreciate that very much.

Chairman LEVIN. We are trying very hard to make that happen. I agree with you, it's not a partisan issue.

Senator INHOFE. Yes, sir.

Getting back to the budget, because we've all talked about that and we talked about the adequacy and the fact that previous budgets were not adequate. Yet it appears to me that most of the increases that I see here are really in the out-years. The National Security Enterprise Integration Committee in its recommendation had recommended, I believe, in fiscal years 2011, 2012, and 2013 $7.3 billion, $7.8 billion, $8.3 billion, and yet it was reduced substantially in the President's budget for those particular years.

So when you talk about the adequacy—I'd like to have each one of you respond to this—are you talking about it would be in the out-years? The administration has proposed a budget increase of $10 billion over 10 years, a total of $80 billion. Yet under the administration's projections 70 percent of the $10 billion increase will not show up until fiscal year 2016. Is that a concern to you, or are you perhaps looking at these future years in terms of the adequacy of the budget?

Dr. ANASTASIO. Senator, I'm very concerned about that budget profile, that there needs to be adequate funding to align the expectations of the program with the fiscal realities that we have. That profile delays many of the issues that are of concern to us, especially in the science and engineering arena.

The key for any program any particular year is an interesting question, but the question is really what does the profile look like over the full extent of the multi-decade program.

Senator INHOFE. Keeping in mind that there's no assurance that that will be there in out-years.

Dr. ANASTASIO. Correct, I understand that, especially with the fiscal environment the country faces. So that is a concern and we understand that.

I think it's important that in the near term as we go through this period, that if those budgets are the reality that we have a balanced program during that time and that we don't sacrifice one part of the program to accomplish another.

Senator INHOFE. I understand that.

Dr. Hommert, you probably talked about the B61 more. I always feel a little inadequate when we have experts like you, that there is probably an assumption that you think we know more than we do know. On this B61 program, in talking with my military legislative assistant earlier today, he was dropping those out of F–111s 25 years ago.

Now, I assume that we've had a lot of technological improvements, but it's more of a complete overhaul that you've been referring to. Is that accurate?

Dr. HOMMERT. Yes, Senator, that's accurate. In my view, we need to execute the full-scope refurbishment and replacement of non-nuclear componentry.

Senator INHOFE. Are you confident you're going to have the resources to do that?

Dr. HOMMERT. Let me answer that in two steps. The fiscal year 2011 budget does have the resources for us to very critically complete, in our vernacular, what we call a Phase 6–2A, or a costing

study, which firms the requirements and sets the cost basis. Then through the rest of what we call full-scale engineering development out through fiscal year 2017, we then will have a firm picture. We'll have to have sustained commitment from here to there to execute this program.

Senator INHOFE. Okay. I would agree with that.

You mentioned, Dr. Hommert and also Dr. Anastasio, a problem that I really wasn't aware of until we started preparing for this hearing, and that is what's happening to our technological base, the people, the scientists, and that we're not replacing them. I think you said that some 38 percent will be over 55 years old. Is there an adequate base, or what are we going to draw from? Do we have a recruitment-like program going on to resolve that problem?

Dr. ANASTASIO. Yes. Certainly we have a very outstanding workforce and we're still able to attract very good people. But the question is, with the budgets that we've had—and we mentioned the reductions that we've had at the laboratory—right now we're doing very little to renew and replace turnover with new people in the workforce.

Senator INHOFE. So you don't think we're really competitive then, are we?

Dr. ANASTASIO. We are competitive at the moment, but I'm worried about the future. That's my concern.

Senator INHOFE. Do you all agree with that?

Dr. MILLER. Yes, sir. At LLNL we live in a very dynamic area, the Bay Area of San Francisco. However, we have historically been able to recruit and retain people in the nuclear weapons program. Our decline is principally financially driven. So if the commitment on the part of the country is there, we as a laboratory can deliver what is expected of us in terms of bringing in the highest quality science and technology.

I would just comment, and to the earlier question on the issue of the long-term sustainability, I am also very concerned about the out-years. An additional reason that I am concerned is because most of these major projects that are taking up funding in the out-years do not yet have very good cost baselines.

Dr. Hommert talked about the B61. The same thing is true for the major facilities. Those projects generate a tremendous amount of uncertainty in our minds about not only what the costs are, but equally important, what are the resources that are going to be required.

Senator INHOFE. That's good.

Dr. Anastasio, just one thing that you mentioned twice in your oral testimony. You used the term "acceptable level of risk" and "adequate level of risk." Could you just make a short comment on how you define the risk and what is adequate or acceptable?

Dr. ANASTASIO. Sir, of course there are very many different types of risk and we face that every day, as you do in your job as well. There are the technical risks, there are the programmatic risks of funding, and there are the risks of surprises that you don't anticipate. How do you manage your way through all of those issues?

Acceptable levels of risk. It's certainly true as a scientist that we are taking technical risks in what we do. We're not doing a nuclear

test. We're not testing the full system. We already talked about what the path forward will take for refurbishments, life extensions. But I believe when I say "adequate levels of risk," I believe that the risks are there. There is not a no-risk version. The risks that are there are manageable, and we can deliver on our responsibilities.

Senator INHOFE. That's fine. My time has expired, but for the record, Mr. Chairman, I'm going to ask each one to take the letter from these previous directors and respond in writing as to how you agree or disagree with these assertions that were made, if you would please do that.

Thank you very much.

[The information referred to follows:]

For Dr. Michael R. Anastasio (and Dr. George H. Miller, Dr. Paul J. Hommert)

Re: Previous Laboratory Director's Letter to Secretary Chu and Secretary Gates

- "... for the record ... take the letter from the previous director and ... respond in writing as to how you disagree with [their] assertions ..."

I agree with the *previous laboratory directors'* statement that we "must have a robust plan to fund the modernization of the U.S. nuclear deterrent" and also concur with the Secretaries' response regarding the shared objective of finding "a solution to problems in the nuclear security enterprise that is politically and financially sustainable over the long term." As I stated in my testimony, "[t]he NPR provides the necessary policy framework ... to sustain the long-term safety, security, and effectiveness of the stockpile. It is important to recognize that to fully implement this roadmap requires investments that carry across multiple Administrations and multiple Congresses." And in this context, I suggested that "[o]ne approach to maintain focus on these issues across multiple Administrations and Congresses could be a set of 'safeguards.'" Safeguards have been used in past arms control treaties and could be usefully be considered in the context of New START ratification."

To this end, and to address long-term sustainability of funding for the nuclear deterrent, I suggest that on an annual basis that Congress should hold hearings, to include testimony by the Chairman of the NWC, the Directors of the nuclear weapons Labs, and the Commander of STRATCOM on the status on the overall health of the stockpile and whether and to what extent to which the stewardship program continues to ensure confidence in the safety, security, and effectiveness of the nuclear deterrent, and sustains nuclear weapons S&T base and design capabilities, including recruitment and retention of key scientific and technological human resources.

In part, I also share the "higher bar" concern raised by the *previous laboratories directors*, but I believe the NPR strongly endorses the consideration, on a case-by-case basis, of the full range of LEP approaches, that is, refurbishment, reuse, and replacement. As I stated in my testimony, "I recognize the sensitivity of this topic but am convinced that ... the laboratories [have sufficient] flexibility to present policy makers with best technical recommendations ... [and] ... do not feel overly constrained." This perspective reflects the joint view that my counterparts at Sandia and Livermore and myself presented earlier this year, namely that "the consideration of the full range of life extension options (refurbishment of existing warheads, reuse of nuclear components from different warheads and replacement of nuclear components based on previously tested designs), provides the necessary technical flexibility to manage the nuclear stockpile into the future with an acceptable level of risk."

Finally, as each party has stated, we all are concerned about the challenges we face to restore the intellectual and physical infrastructure required to sustain the stockpile across multiple administrations and Congresses. Restoring this "infrastructure will take time … and [s]ustaining strong [stockpile] science funding … that underlies all of the work we do, is essential. This funding enables us to carry out the fullest of scientific research and development efforts necessary to meet our nuclear weapon mission and broader national security needs and to attract and retain the best and brightest scientists."

Dr. Miller's additional response.

The letter from the former lab directors raised two concerns: constraints on the laboratories to study the full spectrum of Life Extension Program (LEP) options and budget sufficiency.

With respect to the concern about providing the labs with the flexibility and authorization to explore the full spectrum of LEP options, I believe it is important to ensure that the National Nuclear Security Administration (NNSA) laboratories have the flexibility, responsibility, and authority to study the complete spectrum of potential options, which includes refurbishment, reuse, and replacement, for each future LEP on a case-by-case basis in order to provide the nation's decision makers with our best technical input upon which to base down-select decisions.

Senior Administration officials have made it clear to me that all LEP options should be studied. Department of Energy Secretary Steven Chu, in response to a question during the June 17, 2010, hearing of the Senate Armed Services committee, testified "As was made clear in the nuclear posture review, this administration is committed to studying all options available for future life extension programs, including reuse, refurbishment and replacement on a case-by-case basis."

Furthermore, NNSA's 1251 report includes the following statement:

"(U) The Laboratory Directors will ensure that the full range of LEP approaches, including refurbishment, reuse, and replacement of nuclear components are studied for warheads on a case-by-case basis."

It is my job as the Director of Lawrence Livermore National Laboratory (LLNL) to ensure that the laboratory's workforce understands this direction and that they strive to bring forward their best technical options for life extension activities assigned to LLNL.

With regard to concerns raised about the sufficiency of the budget, I believe the FY2011 budget increase proposed by the Administration is a positive first step toward revitalizing the nuclear weapons complex necessary to maintain the U.S. nuclear deterrent. I encourage Congress to work closely with the Administration to sustain funding increases necessary to revitalize the enterprise and conduct the work scope outlined in the Stockpile Stewardship and Management

Plan. The nation's nuclear strategy—with or without the planned nuclear warhead reductions—requires a balanced, integrated, and sustained program over time. The level of investment, consistent with planned force reductions, must grow over time to capitalize construction of essential new facilities, sustain a robust science, technology, and engineering core, manage the aging stockpile, support an increased level of LEP work, and maintain a critically skilled workforce. Until the baselines are completed, we will not have an accurate and reliable estimation of the resources required. It is clear that sustained effort will be necessary to ensure the appropriate balance within the program across all of its requirements.

In the out-years, the uncertainties associated with baselines for the planned LEPs and construction of large facilities are my primary source of concern. As discussed during testimony, without detailed designs for the Chemistry & Metallurgy Research Replacement (CMRR) facility and the Uranium Plutonium Facility (UPF) and the corresponding cost analysis, funding requirements will remain uncertain. The laboratories and plants are working with the NNSA to develop baselines for these projects, but the total costs are not yet known. It is critically important to budget for adequate contingency in large construction projects to ensure sufficient flexibility to accommodate the detailed design issues that typically arise in constructing these complex, one-of-a-kind facilities. It is equally important to ensure that funding for these construction projects does not erode available funding for the science and technology activities that underpin the maintenance and assessment of the U.S. nuclear deterrent.

Dr. SCHWITTERS. I disagree with the assertion made in the letter by former laboratory directors that language in the Nuclear Posture Review (NPR) imposes "unnecessary constraints on our engineers" that will "inhibit the NPR's goal of honing the specialized skills needed to sustain the nuclear deterrent." The NPR states: "The United States will study options for ensuring the safety, security, and reliability of nuclear warheads on a case-by-case basis, consistent with the congressionally mandated Stockpile Management Program. The full range of Life Extension Program approaches will be considered: refurbishment of existing warheads, reuse of nuclear components from different warheads, and replacement of nuclear components." This is as clear a statement of policy as one can imagine and it explicitly encourages weapons scientists and engineers to examine the full range of technical possibilities for extending and modernizing the Nation's stockpile.

Chairman LEVIN. Thank you.

Senator Ben Nelson.

Senator BEN NELSON. Thank you, Mr. Chairman.

Thank you, gentlemen, for being here today and for the opportunity yesterday to preview the conversations we're having today.

The question of funding is always going to be an issue because of the way in which budgeting is accomplished at this level, because we don't have multi-year budgets. You are concerned about the future, as we all are, because the next year and the following year we'll have to sustain the level of funding that we've started in order for you to fulfill your obligations.

Do you have any reason other than concern about the way in which budgeting works that there won't be this commitment in the future to fund the program so that you can deal with compliance and the requirements that are there? In other words, apart from the uncertainty of the budgeting process, is there anything else out there that would cause you to believe that we won't fund at that level? Dr. Anastasio?

Dr. ANASTASIO. I think that there are several things that could help contribute to sustainability of these programs for the future. One would be the national consensus on the policy. The administration has brought forward a nuclear policy view with the NPR. If that can serve the basis of a national bipartisan consensus on

the path forward, then there's a baseline understanding of what we're all trying to accomplish, and that will help guide all future Congresses and administrations about what we're trying to do.

I also believe that it will be important to keep our focus on these issues. How do we do that? I'm not sure I know the answer, but one suggestion would be to have a hearing like this over the years.

Senator BEN NELSON. There is something about things getting on the record that provides some degree of certainty.

Dr. ANASTASIO. A third suggestion is that some treaties in the past have had safeguard approaches that are built into them. Those could be another kind of approach that we could take to allow the administration and Congress and the American people to keep a focus on these issues to make sure we're on track for what we're trying to accomplish.

Senator BEN NELSON. It won't do us any good to go 100 miles north one year and 100 miles south the next year on funding or on the structure of what your work would be with keeping the stockpile current.

Dr. ANASTASIO. I would agree with that completely, and that would be a very challenging environment to be in to maintain an outstanding workforce as well.

Senator BEN NELSON. Does anybody have anything different to say or are you generally in agreement?

Dr. MILLER. I would say I'm very much in agreement with what Dr. Anastasio talked about. I think, as he indicated, there are a number of mechanisms that seem to me to be available to Congress to maintain sustainability.

Another example is in the context of the national decision to stop doing nuclear testing. There is an annual assessment that each of us do of the stockpile each year. It's classified. It is made available to all levels of government, again a status report on how are we doing, what are the issues. So again, I believe there are multiple mechanisms available to create the kind of consensus and stability and understanding and focus.

Senator BEN NELSON. Dr. Hommert?

Dr. HOMMERT. I agree with my colleagues. I would just add that if we get 2011 right and begin the LEP, it creates a momentum very visibly for moving down that path, which hopefully will again create a basis for greater sustained support, in addition to what my colleagues have added.

Senator BEN NELSON. At the very least, I think it's accurate to say that the fiscal year 2011 budget is reversing the negative trend that you've experienced with budgeting in the past. Is that fair to say, too?

Dr. HOMMERT. Yes.

Dr. MILLER. Yes, sir, it is.

Dr. ANASTASIO. Yes, sir.

Senator BEN NELSON. In monitoring through the New START treaty, can you give us your efforts of how we would monitor if we didn't have the New START treaty? Do we have any capability of monitoring that would be exclusive of, let's say, the New START treaty?

Dr. MILLER. Yes, sir. The New START treaty has some very specific provisions. We do gather intelligence through national tech-

nical means, satellites, and other mechanisms. All three laboratories work with the IC to analyze that. I think it is fair to say that the treaty does add to the ability to inspect sites, so it is a significant addition. But there is capability to understand what's going on independent of the treaty.

Senator BEN NELSON. But the New START treaty would enhance your ability to monitor, is that fair to say?

Dr. MILLER. Yes. It's not ours, but, yes, the country's ability to monitor.

Senator BEN NELSON. Dr. Anastasio?

Dr. ANASTASIO. I would agree with that, yes, sir. We don't have the lead role for the country in that. That's done by other agencies. But we are very much supportive of that, and I would agree that with New START we will have further extended opportunities to understand.

Senator BEN NELSON. A final question here. My time is up. Do each of you support the New START treaty?

Dr. ANASTASIO. As a lab director, it's not really my position to support a treaty. That's not our role. But I believe that with the treaty outlined and the program that the administration has put together that we can carry out all our responsibilities that are underneath the treaty if we can deal with these long-term sustainment issues. So in that context, I'm very comfortable with the treaty.

Senator BEN NELSON. Dr. Miller?

Dr. MILLER. Yes, sir. My view is very similar. My job as a laboratory director is to provide the government, Congress, and the administration my best technical advice. Under the treaty, I can do the job that has been outlined for me. Similarly, we were part of the concurrence in the National Intelligence Estimate (NIE) about the monitoring of the treaty and we concurred in those key judgments.

Senator BEN NELSON. At the risk of getting you into politics, too, Dr. Hommert, what are your thoughts?

Dr. HOMMERT. Very consistent with my colleagues. As I said in my oral testimony, the treaty highlights the imperative of what we're talking about here today in terms of moving forward on strengthening the basis of the deterrent.

Senator BEN NELSON. Thank you all.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Nelson.

Senator Sessions.

Senator SESSIONS. Dr. Miller, I missed, I think, your response to Senator Nelson's question, that you agreed that it would enhance our ability to monitor. Are you saying the New START treaty would enhance the United States' ability to monitor the actions of the Russians?

Dr. MILLER. Yes. Our ability to monitor the actions of the Russians is enhanced over not having the treaty. That was my view.

Senator SESSIONS. Are you saying it's enhanced it over current monitoring abilities?

Dr. MILLER. Yes. Currently, of course, the original START treaty is no longer in effect, we have no onsite inspection rights, and the New START treaty would put those back into place.

Senator SESSIONS. Some of them. Former Secretary of State James Baker has raised questions and experts have, and it's pretty clear that we will not have as good an ability under New START as under the previous START to monitor the Russians. Do you disagree with that?

Dr. MILLER. That's a different question.

Senator SESSIONS. Right. Let's get this straight. The impression here is being left that that's not very accurate, I think.

Dr. MILLER. Again, the question that I answered earlier was over current, in which case we have no inspection rights. Is this better? My answer to that was yes. There are differences between the previous START treaty and the proposal under the New START treaty. As I said in my testimony in answer to the question, we did engage in the coordination of the NIE and did concur in their key judgments.

Senator SESSIONS. I would just share my colleague, Senator Inhofe's, concern about the out-years. When you talk about something in this body dealing with years 6, 7, 8, that is like fantasyland. That's through the looking glass. We have no ability to count on what will happen in those years.

This committee voted, Dr. Anastasio, I think close to sufficient funding on a RRW and other matters, but other committees took it out and we eventually lost that. I do think you've taken too many hits, all of you, in the last several years, and it's not a very smart way to do it.

I was troubled particularly, Dr. Anastasio, in your comments that you've been having to squeeze more on the science and technology part of the budget. To me that's particularly concerning. Indeed, the new spending that's projected in this budget seemed to me to be on the construction of facilities and buildings and not much earmarked for the science and technology.

Do you think we've struck the right balance there, assuming all this money actually were to be appropriated in the distant future?

Dr. ANASTASIO. I certainly think that I agree with you, sir, about the uncertainty of budgets 6 or 7 years from now. Of course, you have much more experience in that than I. But that is a concern to me. I have testified in the past, in 2008, that I've been very concerned about the sustainability of the program over the long term if we didn't fix this.

I think the budget in the fiscal year 2011 proposal is a start to that fix, but as a good program manager you know it's what's the lifetime of the program and the funding over that. The money that's allocated to the new facilities and to the stockpile is important because those are issues that need to be addressed, but I do fear that there has been a history of having an imbalance in the program. We've sacrificed the science to the near-term deliverables, and we need to align our expectations of what's really possible in a fiscal sense with what needs to get done and make sure we do that in a balanced way. Our appetite should be aligned with what's achievable.

But I'm very concerned that the out-year funds will be there and then, as Dr. Miller said, we don't even have baselines yet for the significant costs of these major efforts about the life extensions or about the nuclear facilities. So you would want to be able to expect

that as those baselines are adjusted to the realities that you have, then you'd like to be able to adjust the budget to that as well.

Senator SESSIONS. Dr. Schwitters indicated that we may be good for a decade or so with this maintenance of the current stockpile. But if it were good for 15, 20 years more, don't we today need to be thinking about when and how we're going to need to replace what at some point appears to me would become outmoded or at risk?

Dr. ANASTASIO. We certainly need to be able to today start taking actions to refurbish the stockpile for the future.

Senator SESSIONS. The Nation needs to be very mature about this and to develop a long-term, 20, 30, 40-year plan to go forward, would you not agree, that is rational and makes sense?

Dr. ANASTASIO. Absolutely.

Senator SESSIONS. The only problem is that if the President had his way, the three of you wouldn't have jobs because he wants no nuclear weapons. It's his stated goal, and this makes us all a bit nervous about what our future is.

I think it's clear with regard to the New START treaty that this treaty will not be ratified unless we have confidence that we have a plan in place to maintain and modernize and replace, if needed, our nuclear weapons.

My time is up, but thank you, Mr. Chairman. That's my concern.

Chairman LEVIN. Thank you, Senator Sessions.

Senator Reed.

Senator REED. Thank you very much, Mr. Chairman.

Dr. Anastasio, my understanding is that the goal of the Nuclear Nonproliferation Treaty, which has been in effect for many years, is the elimination of nuclear weapons. Is that accurate?

Dr. ANASTASIO. I'm not an expert on the Nonproliferation Treaty, sir, but I think it sets out a goal of a world that's free of nuclear weapons, that's for sure.

Senator REED. So this is not some current trendy, chic thing that the President's talking about.

Dr. ANASTASIO. I will say that the administration has made clear as well that on our path to a world without nuclear weapons, if we could ever achieve that, that we must maintain a safe, secure, and effective stockpile on that path. I must say personally, I have a hard time imagining what the world—it would be a very special world that's a world that's free of nuclear weapons, now that we have figured out how to do that.

Senator REED. Let me ask you. We've been talking a lot about the out-years, but the Secretary of Defense just on June 17th announced a transfer of $4.6 billion to NNSA. The 2011 budget represents a 13.5 percent increase. Is this the first significant increase in funding you've had in many years to the NNSA enterprise?

Dr. ANASTASIO. Yes, sir.

Senator REED. So interesting to talk about the out-years, but in fact this is the first administration that has made a significant commitment of resources—the first in a long time—to actually begin to address the issues with real dollars of the nuclear enterprise; is that correct?

Dr. ANASTASIO. I believe that this NPR and the budget for 2011 proposal is a strong commitment on the part of the administration.

Senator REED. Dr. Miller?

Dr. MILLER. Yes, sir. It is clearly a major step in the right direction. The budget has been declining since about 2005. At the time the original stockpile stewardship program was put in place in the early to mid-1990s, there of course was a substantial increase at that time. However, as you have noted, since 2005 there has been a steady decline, and this represents a very important and very significant turnaround.

Senator REED. Dr. Hommert?

Dr. HOMMERT. Yes, I agree that the budget represents a significant change that we haven't seen recently. It also comes accompanied with a commitment to managing the stockpile forward, which is equally as important.

Senator REED. Dr. Schwitters, your comment?

Dr. SCHWITTERS. I really have nothing to add.

Senator REED. Thank you.

Let me ask each director and Dr. Schwitters if the New START treaty is ratified, will it have any significant impact on your proposed plans?

Dr. ANASTASIO. What it does is emphasize the importance of the role that we play and the significance of the underpinning of the stockpile and our confidence in it. I hope Congress takes the actions that the administration has suggested.

Senator REED. Dr. Miller?

Dr. MILLER. It certainly does not inhibit the work that we have to do and, because it is a package that emphasizes the importance of maintaining the safety, security, and reliability of the stockpile, it enhances that part which is our technical responsibility.

Senator REED. Dr. Hommert?

Dr. HOMMERT. I agree with my colleagues.

Senator REED. Any comments, Dr. Schwitters?

Dr. SCHWITTERS. No, sir.

Senator REED. Let me just ask the opposite question. If it's not ratified, what impact will it have on the enterprise?

Dr. ANASTASIO. For me then, that will put in question whether we have the consensus strategy to go forward. If that's not the path that the country's taking, what will be the path? So I think it will lead to some uncertainty.

Senator REED. Dr. Miller?

Dr. MILLER. Yes, sir. I think the uncertainty is really the issue. Again, I can't emphasize enough that having an agreed-upon long-term vision for the future of the nuclear weapons stockpile is very important to the stability, to engage the workforce.

Senator REED. Dr. Hommert?

Dr. HOMMERT. Clearly it doesn't change the technical realities we're staring at in the stockpile. But there is the question of the importance of a consistent national policy going forward, and that I think would be what would come into question.

Senator REED. Dr. Schwitters?

Dr. SCHWITTERS. If I could just say a little bit on this. Of course, JASON studied the technical aspects of this. This is not my responsibility, but we did identify, outside of our narrow charge, these issues of the scientific and technical manpower, their sustainability, and we also identified real concerns about surveillance. So

under any scenario, those are high on our priority list that have to be maintained.

We were, of course, pleased with Secretary Chu's commitment to this body on his views on this. That's all I care to say.

Senator REED. Thank you.

Let me ask a final question. Sometimes we dwell, which we should, on the problems that we have, particularly since we have not tested a device, thankfully, for many, many years. If you put yourself in the place of your counterparts in Russia or in China, do they have the same problems in terms of deteriorating skills, deteriorating systems, particularly Russia since that's the focal point of the New START treaty?

Is their nuclear enterprise in the same sort of situation as ours technically?

Dr. ANASTASIO. Sir, I believe that the Russians went through a period of time some years ago of very strong challenges on their budgets. They have recovered from that, is my best insight. They are modernizing their stockpile and they have a very active program and have hired many new people.

Senator REED. Dr. Miller?

Dr. MILLER. I would just add that from a technical point of view they have the same kind of issues that we have. The nature of the issues, the materials, are all very similar. They handle it in a very different way than we do. Whereas we are looking for major reinvestment in the production facilities, they have a very excellent production capability that has been functioning throughout this period. So their approach is different than ours, but the technical issues that have to be resolved are very similar.

Senator REED. Dr. Hommert. The chairman has been very gracious with my time, so if you could respond in writing, that's fine.

Dr. HOMMERT. I agree with my colleagues.

Chairman LEVIN. Thank you.

The vote has started. I think we probably have something like 10 minutes left in the vote, plus the additional 5. So I'm going to call next on Senator Thune. Senator Chambliss, I think there will be enough time for your round if Senator Thune will stick to the 6-minute rule. Then, if no one else shows up, we'll be able to finish the open session and move to the closed session.

Senator Thune.

Senator THUNE. Thank you, Mr. Chairman.

Thank you all very much for your service and for being here today and for the insights that you provide on what is a very important subject and something that many of us want to make sure that we get right.

Dr. Anastasio, in your testimony, you stated that at LANL the average age of career employees is now over 48 and that 32 percent of all career employees are expected to retire within the next 5 years. In fact, General Kevin Chilton, the current head of STRATCOM, said 2 years ago that the last nuclear design engineer to participate in the development and testing of a new nuclear weapon is scheduled to retire in the next 5 years.

Does this cause you some concern?

Dr. ANASTASIO. Yes, sir. It's very much in the issue of how do we renew the really outstanding workforce that we have and how do

we give them the challenges that they need to develop their full skill set.

Senator THUNE. What are you doing under the current limitations of experimenting and testing in order to preserve the nuclear design expertise?

Dr. ANASTASIO. Part of what we do is to analyze the state of the existing stockpile. That has been a large focus of our program for the last 15 years. Unfortunately, that does not challenge their creativity for design, and that's an element that's been missing from the program.

Senator THUNE. Can you describe the relationship between the limitations placed on continuing to pursue scientific advances and your ability to recruit younger individuals to pursue this type of career?

Dr. ANASTASIO. I think one good example for us at LANL, of course, is you need a window. LANL, appropriately, from its history is a very isolated place in the country and we need a way to attract people to want to come visit and engage with us. We've had a major experimental facility there called the Los Alamos Neutron Science Center (LANSCE). It's a proton accelerator to study material properties. We're challenged to keep that facility in the same state that it needs to be; and the facilities that we have running, we have trouble doing all the experiments, having adequate funding to maintain the facility and to do all the experiments we'd like to do.

That's the mechanism to attract people there, and then to sometimes induce them into coming into some of our classified programs.

Senator THUNE. What impact are some of these near-term retirements going to have on the knowledge level required to certify the reliability of nuclear weapons?

Dr. MILLER. Senator, I think that retirements are obviously something of concern. We have programs in place to transfer that knowledge. Frequently, people who retire are willing to continue to come back and mentor young people. So from my point of view, the most important issue in responding to your question is, do we have the financial ability to hire the young people to accept the transfer of the new knowledge? We know how to do that if we have active programs. Again the ability, as specified in the NPR, as we do life extensions to examine the full range of possibilities and engage the workforce, is a very important subject. One of the very important side benefits of having gone through the study phase of the RRW that we did is it really engaged the creativity of the design community to say, what could we do, what is possible.

So that full range of capability as expressed in the need to bring forward options for the LEPs is very, very important to me.

Dr. HOMMERT. Can I just add that this issue of sustaining intellectual capability is a paramount concern for me. I think we're at a critical juncture here where in order to attract young engineering and science talent—these are individuals that want to do real work—the stockpile demands that we do real work, and we need to proceed, and that will bring the talent we need to bridge this experienced to inexperienced relationship.

Dr. ANASTASIO. Senator, could I add one more point which I think is very important? For our scientists especially that get involved, and engineers, at the lab, they get involved in these classified programs, they're giving up their visibility into the broad technical community because they're working on classified issues. That's a big step for someone to make, that we all made in our careers. The feeling at the laboratory that we're working on something that's really important for the country is a really important issue to be able to attract good people. If there's not the feeling of commitment, a thing that's been lacking in the last 15 years, that this is an important activity for the national interest—and I think with the policies that are being brought forward, if they can be implemented, that would be a way to reassure the workforce that this could be a significant career move for them to make and help us attract the good people.

Senator THUNE. Very quickly, Dr. Miller and Dr. Hommert, the status with respect to age and retirement of your workforce? Is it similar to what Dr. Anastasio described in his testimony?

Dr. MILLER. Yes, it's very similar.

Dr. HOMMERT. Yes, we have similar statistics as well.

Senator THUNE. Thank you.

I will let Senator Chambliss go.

Chairman LEVIN. We appreciate that, and questions for the record would be welcome.

Doctor—"Doctor Chambliss." Senator Chambliss. [Laughter.]

Senator CHAMBLISS. I can't even spell "nuclear physics," Mr. Chairman. [Laughter.]

Gentlemen, I want to pick up on this issue of your personnel, because I know that, Dr. Anastasio and Dr. Miller, you have said that you've lost approximately 2,000 personnel each since fiscal year 2006. Dr. Hommert, I assume you're down somewhat. Is it comparable to that?

Dr. HOMMERT. About 800 out of the weapons program directly.

Senator CHAMBLISS. Looking at you, you're like me; you're greyheaded, what hair we have left. Dr. Hommert, I'm with you there. But when you gentlemen came into this program it was on the upswing you were challenged to develop systems based on ideas that you could come up with. I'm sure it was an exciting time for you and the colleagues that you had the opportunity to work with.

Now, nuclear physicists coming out of Georgia Tech in my State, if they go to work in a lab it's going to be working on maintaining a system. It's not the excitement from the standpoint of the day-to-day work, it appears to me. I think you have a real challenge there. Not that you can't meet it, but it looks to me like that's going to be very difficult to be able to continue to draw folks into the field of science and physics and challenge them in the work that they're going to be doing in your labs.

Do the numbers in the budget that have been proposed allow you to begin hiring folks back that you've had to let go?

Dr. HOMMERT. Let me take a crack here. Certainly for us the fiscal year 2011 budget would demand that, for example, in the main LEP line, we'll have to double the staffing where we are today. That will attract individuals into the weapons program. The nature

of the work itself, where we have the opportunity to bring new technology, is exciting and challenging to staff.

The last point I'd make is that at SNL we have a range of other national security activities that we do which in a technology space are very similar to what we have to pull on for the weapons program. That all combined, even though we still have to have that imperative of moving forward on the LEP, does provide a basis of a strong intellectual capability. So I'm confident that if all the pieces come together we can do that.

Dr. MILLER. Yes, sir, my answer is very similar. The increase in the fiscal year 2011 budget is small for us, but it is real. In addition, the prospect of working on the life extension of the system after the B61, the W78, is very important to us. It does exercise not quite all aspects of weapons work, but it does exercise the creativity, the intellectual curiosity, as well as, importantly, the engineering discipline of actually turning your ideas into something real.

So the program of work and the budget, I think, gives me the capability to carry out the function as you described it.

Dr. ANASTASIO. I agree.

Senator CHAMBLISS. We haven't had a test on any of our systems since 1992. How much longer are we going to be able to go without testing? Dr. Anastasio?

Dr. ANASTASIO. With the way this program is defined, with the flexibility that we have, and if we're adequately funded and appropriately funded through the life of this program, I think we can continue down this path for quite an extended period.

Senator CHAMBLISS. Does anybody disagree with that?

Dr. MILLER. No. What I would say is that as long as we have the ability to continue to make progress on understanding the underlying science and technology and the flexibility to manage the stockpile appropriately, that gives us the ability to continue with the program as it's currently laid out, that we can do our job without having to resort to additional nuclear tests.

Dr. ANASTASIO. Sir, be sure that we feel very strongly that it's our obligation, if we ever doubt that that's the case, that we will bring that forward to decisionmakers.

Senator CHAMBLISS. When is the last time we manufactured a nuclear warhead?

Dr. MILLER. Let's see. The most recently completely from scratch manufactured nuclear weapon would have been the W88, which occurred in the late 1980s and early 1990s. We have manufactured components through the LEPs for the W87, the B61, and the W76. So we've remanufactured components, but not from scratch, since the W88.

Senator CHAMBLISS. Do we have the capability today to manufacture one from scratch?

Dr. MILLER. We do, but in limited numbers.

Senator CHAMBLISS. We have two facilities: one at LANL and one at Oak Ridge, that are planned for construction. What additional capabilities will those two facilities give us?

Dr. ANASTASIO. For the one at LANL, the CMR replacement facility, that will not give us new capability, but it will be a smaller version of the capability that currently exists that was opened in

1952. That's a very old building that does not meet current safety and security standards, and this would be a replacement for that facility that is right-sized for the capability we need today. The capability it represents is to give us the scientific understanding of the chemistry and metallurgy of very complex materials like plutonium. So it makes us understand the plutonium and assure the country that the material in our weapons is behaving the way we can expect and that we understand how that goes forward. Plutonium is material that has only existed to our knowledge for 60-plus years, so there's still plenty to learn about that material, and this is the facility in which we do that.

Senator CHAMBLISS. I appreciate your statement about the fact that you don't yet have all the cost estimates on these facilities, because frankly it's going to take about 10 years to construct both those. I've seen the numbers, $4.5 to $5 billion each. That makes this budget issue critical. Your being able to hire or continue to hire the right kind of people makes this budget critical. We have to get some level of confidence that you're going to have those funds, because obviously you haven't had them. They have to be there in order for this treaty to work.

I'll just close, Mr. Chairman, by saying that one of the other things I'm concerned about in this treaty is the inspections under New START. I assume it was not uncommon for the Russians to be in your facilities on a fairly regular basis under the previous treaty, as we were, at least on the outside and occasionally on the inside, at places like Votkinsk. Now we're going to depend on the Russians to tell us what they're doing, just as you're going to be telling the Russians what you're doing. I have all the confidence in the world you're going to tell them the truth. I think there are still some issues relative to the Russians.

When you have a total of 18 inspections a year under this treaty or a total of 180 over 10 years, versus the over 600 that we did under the previous treaty, I think there are some real inspections and trust issues that are going to have to be resolved before we can get this treaty completed.

But gentlemen, thank you for the work you do. I have not been to any of your labs, but I intend to, and I look forward to visiting with you on site. Thank you.

Chairman LEVIN. Thank you very much, Senator Chambliss.

We are now going to close our open session. We very much appreciate the testimony of all of our witnesses. There will be additional questions for the record. We will now move. Perhaps 15 minutes from now, if you could all get to room SVC–217, the Capitol Visitor Center, we will have our closed session in room SVC–217.

We will stand adjourned, with thanks.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JEFF BINGAMAN

REPLACEMENT, REUSE, AND REFURBISHMENT

1. Senator BINGAMAN. Dr. Hommert, there seems to be a lot of debate about refurbishment versus component replacement. Can you talk about the differences in replacing a non-nuclear component outside the sealed warhead versus a nuclear component inside the warhead?

Dr. HOMMERT. Non-nuclear components are periodically inspected, and there are multiple reasons for replacement including issues identified via the surveillance pro-

gram, components with known limited lifetimes, necessary modifications for interface with delivery systems and, in the case of major life extension programs (LEP), to improve surety and to replace obsolete technologies. The vast majority of non-nuclear components are significantly more accessible than the nuclear components.

2. Senator BINGAMAN. Dr. Schwitters, you mention three options for the stockpile: refurbishment, reuse, and replacement. The refurbishment option seems a little odd in proposing to use another warhead assembly inside another nuclear weapon. Can you explain the issues in certifying such an option compared to refurbishment or even replacement?

Dr. SCHWITTERS. From its context, the question seems to be concerned with the reuse option, which refers specifically to the use of existing surplus pit and secondary components from other warhead types. Because the key nuclear components have their pedigrees from underground nuclear tests, the certification challenges for reuse hinge on ensuring the physical conditions expected in the new configuration of nuclear components are sufficiently close to those represented in the underground tests of the component parts to maintain confidence in the new weapon configuration without further underground tests.

In the refurbishment option, warhead components are replaced before they degrade with components of nearly identical design or that meet the same form, fit, and function. This option forms the basis of the successful LEPs performed to date.

3. Senator BINGAMAN. Dr. Anastasio, on page 4 of your testimony you state that your obligation is to "examine all the relevant technical options for a LEP, including refurbishment, reuse, and replacement and bring them forward to the Nuclear Weapons Council (NWC) for a decision." I take it then that you feel no constraint in looking at any of these options?

Dr. ANASTASIO. I believe the Nuclear Posture Review (NPR) strongly endorses and the National Nuclear Security Administration (NNSA) Stockpile Stewardship and Management Plan (SSMP) reinforces that, on a case-by-case basis, the full range of life extension options will be considered. As I stated in my testimony, "I recognize the sensitivity of this topic but am convinced that ... the laboratories [have sufficient] flexibility to present policymakers with best technical recommendations ... [and] ... do not feel overly constrained."

This perspective reflects the view that the three national security laboratory directors jointly presented earlier this year: "the consideration of the full range of life extension options (refurbishment of existing warheads, reuse of nuclear components from different warheads, and replacement of nuclear components based on previously tested designs), provides the necessary technical flexibility to manage the nuclear stockpile into the future with an acceptable level of risk."

4. Senator BINGAMAN. Dr. Miller, do you support reusing the W–84 warhead, which is currently being stored and out of service, and if so, in what way?

Dr. MILLER. I support consideration of the W84 for an LEP utilizing the reuse option. The laboratory directors have been tasked to ensure that the full range of LEP approaches—including refurbishment, reuse, and replacement of nuclear components—is studied on a case-by-case basis for each system scheduled for an LEP. The W84 warhead has a number of key attributes that make it a candidate for reuse for a future air-carried system life extension. It is a well-tested design with many modern safety and security features. A decision to reuse the W84 or its components would be made based on technical assessments of the ability of the W84 to meet critical stockpile goals (weapon system safety, security, and effectiveness) and the results of surveillance of the W84.

B61 PROGRAM

5. Senator BINGAMAN. Dr. Hommert, on page 3 of your testimony under Stockpile Surveillance you note a Surveillance Transformation Plan in the fiscal year 2010 budget submission. Will this plan be implemented in the B61 LEP?

Dr. HOMMERT. The basic tenets of surveillance transformation are an approach that is tailored over the lifecycle of a warhead, and the creation of a more anticipatory, predictive program based on performance distributions, margins, trends, and uncertainties. We are implementing this approach for the B61 LEP.

6. Senator BINGAMAN. Dr. Hommert, on page 4 of your testimony you mention the timing and integrating the B61 to the F–35, which is an entirely new design. It seems to me that the whole F–35 program is still being worked out through develop-

mental testing. Do you have certainty in the requirements for integrating this nuclear weapon to the F–35 at the present time?

Dr. HOMMERT. The Air Force requirements for the B61 LEP are still under development and there is some technical risk associated with the preliminary nature of our knowledge of the F–35 flight environments. We have an initial set of requirements that we are using today, and we have a schedule for finalizing the requirements going forward. We often experience changes to some elements of the requirements, and we have a rigorous requirements management process in place to deal with these changes.

7. Senator BINGAMAN. Dr. Hommert, on page 4 of your testimony for the B61 you mention that "total cost estimates are subject to change until the design definitions and requirements are finalized." How close are you to getting a total cost and time estimate for Sandia's portion of the B61?

Dr. HOMMERT. The 6.216.2A design definition and cost estimation study will be completed at the end of fiscal year 2011.

8. Senator BINGAMAN. Dr. Hommert, on page 5 of your testimony you mention the large staffing changes that are underway to support the B61 program. Where are the staff coming from and could they affect other areas of work for Department of Defense (DOD) customers?

Dr. HOMMERT. We are committed to a smooth and orderly transition as we ramp up for the B61 LEP, which is arguably the largest nuclear weapons development program we have had in over 2 decades. Through a strategic management decision earlier this year, we began staffing up for this program, and the recently approved reprogramming for fiscal year 2010 will align our fiscal year 2010 funding with our current staffing levels. The additional growth required in the program next year is large, and we will add the new staff in three ways: shifts within our nuclear weapons program, selective conversion of staff from our Work for Others (WFO) projects, and new hiring. We have an aggressive and successful hiring program underway. Overall at SNL we have hired over 600 people this fiscal year. We are devoting a significant amount of executive leadership and management attention to this, and we are confident that we can take on the B61 LEP without putting our DOD and other WFO programs at risk.

9. Senator BINGAMAN. Dr. Schwitters, will JASON be involved in the work scope of the B61 and the study on the possible merger to a single warhead for both the Minuteman and Trident missiles, and do you see merit in an external review by your group of these two programs?

Dr. SCHWITTERS. JASON has not been asked to examine the scope of the B61 LEP nor the possible merger to a single warhead for both the Minuteman and Trident missiles. Requests to do so would normally come from NNSA or DOD. This summer (2010), we were asked by DOD to examine questions regarding those programs as part of a classified study on DOD surety matters. I believe there would be merit in having JASON look into the technical aspects and peer review approaches of both the B61 LEP and the possible development of a single warhead for both Minuteman and Trident missiles.

COMMERCIAL SUPPLIERS

10. Senator BINGAMAN. Dr. Hommert, on page 6 of your testimony you mention the benefit of commercial off-the-shelf products. How do you maintain an adequate long-term supplier base for them, especially when they must be certified for nuclear weapons?

Dr. HOMMERT. It is a challenge to ensure that the Nation has a sufficient, reliable long-term supplier base for all the components of the nuclear weapons stockpile. While some of the components and devices for nuclear weapons are based on the same underlying technologies of commercial products, we often have unique performance requirements and have to survive very harsh environments. Working closely with the non-nuclear component production agencies within the NNSA complex, SNL uses rigorous processes to continuously evaluate which components to acquire commercially, and to certify these external suppliers. Some components must be manufactured within the complex for both effectiveness and surety purposes. The W76–1 arming, fuzing, and firing, for example, includes a large number of commercially available microelectronic devices, but 98 percent of the core functionality resides in the custom application specific integrated circuit that were designed at SNL

and manufactured in the trusted foundry of our Microsystems and Engineering Sciences Applications (MESA) Complex.

SANDIA WORKFORCE

11. Senator BINGAMAN. Dr. Hommert, on page 7 of your testimony you discuss your workforce, its age and qualifications. It seems to me that one of the distinctive features of Sandia is its ability to maintain a diverse set of missions other than nuclear weapons, such as research with industry or the Office of Science. Will that be endangered with the large nuclear weapons workload that you expect?

Dr. HOMMERT. Please see the answer to question #8.

QUANTIFICATION OF MARGINS AND UNCERTAINTIES RECOMMENDATIONS

12. Senator BINGAMAN. Dr. Schwitters, the National Academy of Sciences (NAS) did a study on Quantification of Margins and Uncertainties (QMU) and found that many of the tools used for nuclear reactor design could be used effectively for our stockpile. Are you aware of whether the labs have embraced the recommendations of this report?

Dr. SCHWITTERS. The weapons laboratories led the way in the original establishment of QMU as a method for assessing confidence in the nuclear weapons stockpile. The 2008 NAS study found that QMU is a "sound and valuable framework" that helps the national security laboratories perform their responsibilities within the nuclear weapons program. Among its many recommendations, the report suggested that some concepts and capabilities previously developed in the area of probabilistic risk assessment could be applied to QMU applications. The laboratories appear to be following many of the recommendations of the QMU report, with Sandia perhaps embracing them most fully. Some of the report's recommendations have received less attention than others, although it is important to note that some of the recommendations basically ask the laboratories to address technical problems for which the solutions are as yet unknown.

WARHEAD CONSOLIDATION

13. Senator BINGAMAN. Dr. Anastasio, Los Alamos designed the W78 Minuteman III warhead and the W88 Trident warhead, but I understand from page 9 of Dr. Miller's testimony that Lawrence Livermore National Laboratory (LLNL) is in the lead in the study to look at consolidating these two warheads. Do you feel comfortable moving the technical details of these warheads to another laboratory?

Dr. ANASTASIO. In April 2010, NNSA announced that it had assigned the W78 LEP to LLNL. I am confident that Los Alamos National Laboratory (LANL)–SNL can transfer the necessary technical information to support a W78 life extension activity by LLNL–SNL. This transfer will be further enabled as the W78 is one of the first system to be part of the INWAP process of independent assessment by the other laboratories' team.

At this point I am unaware of any decision by NNSA to consolidate W78/W88 into a common warhead. Should NNSA move in that direction, both laboratories will be asked to provide their best technical options for sustaining the stockpile over the long term.

SURVEILLANCE

14. Senator BINGAMAN. Dr. Anastasio, on page 2 of your testimony you note that "surveillance shows ever increasing signs of aging." You often say the sealed warhead is a miniature chemical reaction—how well can you model this form of aging?

Dr. ANASTASIO. Over the past year we have witnessed improvements in model fidelity. I remain concerned about the aging issues we have identified and new aging issues that we may uncover in the future. Modeling the impacts of aging phenomena is an important activity on which many scientists and engineers are focused and many resources are directed. The level of success always depends on the availability of required data, the maturity of the associated models, the capability of high performance computing and simulations, and the degree to which the scientist or engineer understands the phenomenon.

1251 REPORT

15. Senator BINGAMAN. Dr. Anastasio, on page 10 of your testimony you state that "I am concerned that in the administration's section 1251 report (on funding), much of the planned funding increase for weapons activities do not come to fruition until the second half of the 10-year period." Can you please explain what you mean by that and its impact?

Dr. ANASTASIO. My concern refers to the need for sustained investments that carry across multiple administrations and Congresses. Many of the science, technology, engineering, and infrastructure investments are planned for the second half of the next decade. These investments must be implemented within an uncertain and challenging financial future facing the Nation.

Significant budgetary declines in nuclear weapons funding have been seen many times when the Nation has faced difficult fiscal realities. The President's fiscal year 2011 budget request is a positive first step in the fiscal implementation of the roadmap to sustain the long-term safety, security, and effectiveness of the stockpile. The roadmap is a reasonable path to achieving these ends, and it must be fully implemented.

STOCKPILE STEWARDSHIP AND MANAGEMENT PLAN

16. Senator BINGAMAN. Dr. Anastasio, do you think the SSMP effectively takes care of refurbishing the Los Alamos Neutron Science Center (LANSCE) over the next 10 years and if not, what does Congress need to do?

Dr. ANASTASIO. During my testimony on 15 July 2010, I highlighted the important roles that the LANSCE plays technically for the Stockpile Stewardship Program (SSP) and in attracting new staff to pursue a career at the laboratory, and the challenges LANL faces in identifying adequate funding to maintain and operate the facility.

LANL has recently responded to a request by Under Secretaries D'Agostino, Johnson, and Koonin asking for (among other things) a plan regarding the full suite of issues that need to be addressed to sustain operations of LANSCE through the decade. That plan proposes an increase to the operating budget to a level that supports execution of the essential maintenance that continues to allow the linear accelerator to operate in the short term; invests in long-term capital replacements to mitigate the major risks to continued operation of the linear accelerator and beam transport systems; and invests in risk mitigation for the rest of the facility to provide a more reliable capability.

The proposed plan has the support of the Department of Energy (DOE), and LANL is working with the Under Secretaries to actualize it within the SSMP.

SINGLE WARHEAD MERGER

17. Senator BINGAMAN. Dr. Anastasio, how could the merger to a single warhead for the Minuteman III and Trident missiles affect the workload of the TA–55 plutonium facility and will the construction of the Chemistry and Metallurgy Research Replacement (CMRR) facility affect this?

Dr. ANASTASIO. In April 2010, NNSA announced that it had assigned the W78 LEP to LLNL. At this point I am unaware of any decision by NNSA to consolidate W78/W88 into a common warhead. Based on conversations with LLNL, LANL is prepared to support the pit options under consideration for the LEP.

If pit production is required for future LEPs, LANL has the capability to support that mission with adequate investments to sustain the TA–55 infrastructure. The TA–55 reinvestment project is a multi-year effort that will ensure the continued safe and secure operations of the Nation's only pit manufacturing facility for an additional 25 years. The construction and use of the CMRR facility is unaffected by pit type and is essential to execute the entire plutonium mission. The samples analyzed in the CMRR are independent of what type of pit is being made in the plutonium facility (PF–4).

NATIONAL IGNITION FACILITY

18. Senator BINGAMAN. Dr. Miller, when do you expect the National Ignition Facility (NIF) to become fully operational to support the stockpile?

Dr. MILLER. The NIF became operational in March 2009. The National Ignition Campaign (NIC) is scheduled to be completed at the end of 2012. The NIC's goals are the development of a reliable and robust ignition platform for experiments and

transition of NIF to fully operational international user facility. In 2009, stockpile stewards began to utilize NIF as an experimental facility capable of creating the temperatures and pressures necessary to study the physics of the nuclear phase of weapons performance. At the present time, the NIC is focused on achieving ignition and supporting non-ignition stockpile stewardship experiments on NIF that are aligned with the SSP's Predictive Capability Framework roadmap. As the NIC continues, infrastructure such as diagnostics, cryogenics, and personnel and environmental protection systems to support a wide range of types of SSP experiments are being integrated into the facility. NIF is scheduled to complete its transition from project completion to routine facility operations in support of the NNSA's SSP by the end of fiscal year 2012.

19. Senator BINGAMAN. Dr. Miller, how do you envision NIF and Sandia's Z machine working together under the stockpile program?

Dr. MILLER. NNSA laser (NIF and OMEGA) and pulsed power (Z-machine) facilities are fundamentally different types of experimental platforms. They are complementary and provide unique and important capabilities for the SSP. Experiments at these facilities will support stockpile assessment via validation of Advanced Simulation and Computing (ASC) codes through the direct measurement of:

- Material properties under extreme conditions of temperature and pressure,
- Radiation transport and complex hydrodynamics, and
- Examination of the behavior of weapon components under intense x-ray radiation.

NIF, and to a lesser extent OMEGA, provide the ability to focus energy into a small volume and reach extremely high energy densities in matter. The Z-machine can produce a comparable level of x-ray energy to NIF, but NIF will be able to produce energy densities approximately 20 times those available at Z. Also, only NIF can be used to explore applications of ignition, where the fusion process can be used to create conditions approaching the temperatures and pressures in a nuclear weapon. NIF and the Z-machine are viewed as stockpile stewardship tools that complement rather than compete with each other, and planned SSP experiments are designed to capitalize on strengths of each facility.

EXASCALE

20. Senator BINGAMAN. Dr. Miller, your testimony refers to advances in computing to millions of trillions floating point operations per second or Exascale—are you working with the DOE's Office of Science computing program on this?

Dr. MILLER. LLNL and other DOE laboratories are partnering with the DOE Office of Science and the NNSA to advance computing from the current PetaFlop platform (as exemplified by the 20 PetaFlop Sequoia machine currently on schedule to be installed at LLNL in 2012) to the Exascale regime. DOE has chartered a steering committee composed of representatives from Argonne, Brookhaven, Lawrence Berkeley, Lawrence Livermore, Los Alamos, Oak Ridge, Pacific Northwest, and Sandia national laboratories (SNL) to provide advice on a proposed DOE Exascale initiative.

Supercomputing is key to our nuclear weapons assessment and certification mission. The majority of existing weapons types will undergo life extension over the next two decades or so. Analysis of the magnitude and quantity of the highly specialized and complex simulations needed to support the full spectrum of LEP approaches (refurbishment, reuse, and replacement) shows that Exascale computing platforms are not only required but will need to be on-line for use in the 2020 time frame if we are to meet programmatic milestones and production timelines. Of particular importance is the ability to numerically predict changes resulting from the inevitable and continuous aging of materials in weapons produced during the Cold War and the effects of these material changes on warhead performance. The fact that we must perform very large numbers of these complex simulations to rigorously quantify uncertainties further drives the need for Exascale computing.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

NUCLEAR POSTURE REVIEW

21. Senator MCCAIN. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, a letter dated May 19, 2010, to Secretary Gates and Secretary Chu from 10 former and well-respected lab directors cited significant concern with the guidance set forth in the administration's Nuclear Poster Review (NPR) to give "strong preference to

options for refurbishment or reuse." The former lab directors state that such guidance "imposes unnecessary constraints on our engineers and scientists" and that based on their experience as former lab directors, they believe this "higher bar for certain life extension options will stifle the creative and imaginative thinking that typifies the excellent history of progress and development at the national laboratories, and indeed will inhibit the NPR's goal of honing the specialized skills needed to sustain the nuclear deterrent."

In response to this letter from the former lab directors, Secretaries Gates and Chu issued a response stating that supplemental NPR guidance has made it clear that all LEP efforts should be pursued.

Has this message been clearly conveyed to you? If so, what was the forum for doing so; was it a Presidential Directive?

Dr. ANASTASIO. In addition to the NPR itself, the Secretaries of Energy and Defense response to the 10 former laboratory directors letter dated May 19, 2010, regarding the "2010 NPR Report and the administration's strategy for stockpile sustainment, stated that: The lab directors will ... make sure that the full range of LEP approaches, including refurbishment, reuse, and replacement of nuclear components, are studied on a warhead case-by-case basis ... [and] will ... provide findings associated with the full range of LEP approaches and ... make ... recommendations based solely on their best technical assessments of the ability of each LEP approach to meet critical stockpile management goals."

Dr. MILLER. Yes. Senior administration officials have made it clear to me that all LEP options should be studied. DOE Secretary Steven Chu, in response to a question during the June 17, 2010, hearing of the Senate Armed Services Committee, testified "As was made clear in the NPR, this administration is committed to studying all options available for future LEPs, including reuse, refurbishment, and replacement on a case-by-case basis."

In fact, we have received subsequent reinforcement, through meetings and conversations with key administration officials, indicating that the NNSA laboratories have the flexibility, responsibility, and authority to study the complete spectrum of potential options, which includes replacement, for each future LEP in order to provide the Nation's decisionmakers with our best technical input upon which to base down-select decisions. NNSA's 1251 report includes the following statement: The laboratory directors will ensure that the full range of LEP approaches, including refurbishment, reuse, and replacement of nuclear components, are studied for warheads on a case-by-case basis."

Dr. HOMMERT. SNL has had direct communication from the Secretary of Energy and the NNSA concerning the response to this letter, but we have not received a Presidential Directive. The response from Secretaries Chu and Gates clearly states that "the technical community is not constrained in its exploration of technical options for warhead life extension." It also assigns the laboratory directors with the responsibility for making sure that "the full range of LEP approaches, including refurbishment, reuse, and replacement of nuclear components, are studied on a warhead case-by-case basis." This is consistent with the NNSA SSMP which refers to all three options: refurbishment, reuse, and replacement; and the DOD 1251 document which specifically states "the full range of LEP approaches will be considered."

Dr. SCHWITTERS. The message that all options for future LEPs should be considered was made clear in the NPR itself, which states: "The United States will study options for ensuring the safety, security, and reliability of nuclear warheads on a case-by-case basis, consistent with the congressionally-mandated Stockpile Management Program. The full range of LEP approaches will be considered: refurbishment of existing warheads, reuse of nuclear components from different warheads, and replacement of nuclear components." We agree that all technical options can and should continue to be explored.

When it comes to implementing a particular LEP, we believe the preference assigned in the NPR to refurbishment and reuse is both prudent and appropriate. In the absence of underground nuclear testing, it is important to maintain strict discipline over any changes made to the nuclear explosive packages (NEP) of stockpile systems to avoid unintentionally undermining confidence. In the language of QMU, a change designed to improve some performance margin M can actually have a deleterious effect on confidence if the change increases the uncertainty in performance U such that the net value of M/U is diminished.

NNSA WEAPONS PROGRAM FUNDING

22. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, the 10-year plan for complex modernization attributes only $10 billion to modernization efforts

and the projected cost of CMRR and Uranium Processing Facility (UPF) is roughly $7 billion, if not more. How confident are you that the remaining $3 billion will be sufficient to conduct three projected warhead life extensions while also bolstering overall stewardship, surveillance, and dismantlement efforts?

Dr. ANASTASIO. Both the CMRR facility and the UPF are still being planned, and cost baselines have not been finalized. We are working closely with NNSA on this important project. To deliver CMRR successfully we must have certainty in funding and consistency in requirements throughout the project. In addition, cost baselines have not been established for the projected warhead LEPs. At the same time, there are many other essential facilities across the complex and at Los Alamos that cannot be neglected because of our necessary focus on the major nuclear facilities.

Many of the science, technology, engineering, and infrastructure investments are planned for the second half of the next decade. These investments must be implemented within an uncertain and challenging financial future facing the Nation. I am also concerned about currently unquantified costs associated with pensions and sustaining the rest of the nuclear security enterprise, both of which are expected to increase during the next 10 years.

Dr. MILLER. In the out-years, the uncertainties associated with baselines for the planned LEPs and construction of large facilities are my primary source of concern. As discussed during testimony, without detailed designs for the CMRR facility and the UPF and the corresponding cost analysis, funding requirements will remain uncertain. The laboratories and plants are working with the NNSA to develop baselines for these projects, but the total costs are not yet known. It is critically important to budget for adequate contingency in large construction projects to ensure sufficient flexibility to accommodate the detailed design issues that typically arise in constructing these complex, one-of-a-kind facilities. It is equally important to ensure that funding for these construction projects does not erode available funding for the science and technology activities that underpin the maintenance and assessment of the U.S. nuclear deterrent.

The fiscal year 2011 budget increase proposed by the administration is a positive first step toward revitalizing the nuclear weapons complex necessary to maintain the U.S. nuclear deterrent. The nation's nuclear strategy—with or without the planned force reductions—requires a SSMP that is balanced, integrated, and sustained over time. The level of investment, consistent with planned nuclear warhead reductions, must grow over time to capitalize construction of essential new facilities, sustain a robust science technology and engineering core, manage the aging stockpile, support an increased level of LEP work, and maintain a critically skilled workforce. Until the baselines are completed, we will not have an accurate and reliable estimation of the resources required. It is clear that sustained effort will be necessary to ensure the appropriate balance within the program across all of its requirements.

Dr. HOMMERT. It is true that the overall allocation of the requested resources is strongly weighted toward construction of these two key facilities. NNSA is strongly committed to the program management discipline required to control the costs associated with major construction projects. The $3 billion is in addition to the baseline funding, and comes with a commensurate set of new requirements, as you've noted in your question. While the exact funding profiles required for the upcoming LEPs are not yet known precisely, we are committed to working with NNSA to fund the highest priority activities, to allow us to deliver on the LEPs, strengthen our knowledge and confidence in the existing stockpile, and sustain and advance our capabilities for the future.

23. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, do you believe a standing requirement, akin to the 1251 report, for DOE to provide a 10-year topline budget figure would be beneficial and provide additional fiscal stability within the complex?

Dr. ANASTASIO. Yes. A disciplined, comprehensive, and coordinated planning process could produce an annual long-term budget for the nuclear security enterprise that would benefit DOE, NNSA, the nuclear weapons laboratories, and the production plants. This product could be one way of informing Congress so that a defensible investment strategy could be sustained and stable funding could be established.

Dr. MILLER. Yes. Annual updates that reflect evolving requirements, progress on the baselines for the major efforts within the NNSA enterprise, and arising issues in the stockpile would be beneficial for the purposes of forecasting and planning. It is important to note that the nature of NNSA's work requires program flexibility because technical issues arise in the stockpile and requirements evolve. The scope of work and budgets will need to be correspondingly adjusted. Annual updates to

the summary of the SSMP could provide a mechanism to outline the program's funding requirements and projections. In addition, I would recommend consideration of an annual assessment of the health of the integrated enterprise be included as part of these updates. Both would foster dialog to achieve a national consensus on programmatic requirements and expectations for a sustained SSMP.

Dr. HOMMERT. The NNSA undertakes an annual budget process that results in the President's budget request to Congress. This annual process includes multi-year funding requirements. If Congress feels that a longer-term funding profile is important as part of the annual process, SNL would willingly support NNSA in developing longer future budget estimates.

24. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, I understand that prior to the release of the fiscal year 2011 budget you originally requested more than a billion dollar increase in the weapons program account. Given the President's budget allocated a $624 million increase, about two-thirds of your original request, I am interested in learning more about what the administration chose not to fund. Specifically, what does the difference between your original request and the actual budget represent in terms of infrastructure, human capital, and scope of work?

Dr. ANASTASIO. As I said previously in my testimony, " . . . the administration has developed a fiscal year 2011 budget that moves us in the right direction. I view the NNSA's fiscal year 2011 budget request as a positive first step and I urge its approval by Congress." Further, I believe that we need to be focused not on a single year's budget, but rather on a long-term sustainable program that is both balanced and flexible as new costing information comes available on the nuclear facilities and on the planned LEPs.

Dr. MILLER. The fiscal year 2011 budget increase proposed by the administration is a positive first step toward revitalizing the nuclear weapons complex necessary to maintain the U.S. nuclear deterrent and reversing the recent trend of declining budgets. The budget increase proposal was informed by a request developed a year ago by the NNSA laboratory directors for a 3-year funding ramp increase to the NNSA Weapons Activities account to create a balanced and robust program of work across the three primary areas in the SSP. These include: (1) the science and technology that underpins our understanding of an aging stockpile and supports a reinvigorated surveillance program; (2) the LEPs that are necessary to keep the systems safe, secure, and effective; and (3) the modernization of the facilities and infrastructure.

NNSA recognizes the importance of a balanced program of work outlined by the laboratory directors, but chose to stretch the schedule for meeting deliverables. While some aspects of the laboratory's activities could proceed more rapidly if funding were available, this situation is different than an "unfunded requirement" or true shortfall.

The original laboratory director request contained additional funding in the following areas (compared to the fiscal year 2011 President's budget request):

- Surveillance. The increase in surveillance provided for a robust surveillance program. This program included both augmented data collection for the annual assessment process and development of advanced techniques for monitoring the health of the stockpile. NNSA is applying a risk-informed design process to allocate fiscal year 2011 funding towards the highest priority surveillance concerns. The President's budget request does include a modest increase in funding for surveillance.
- Readiness in Technical Base and Facilities (RTBF). The laboratory director proposal recognized the need for a robust facility infrastructure. The fiscal year 2011 budget request is a positive first step, but continues to fall short in RTBF at many sites across the complex. At LLNL, due to a $6 million fiscal year 2011 RTBF shortfall, funding for high hazard and nuclear facility compliance is marginal.
- Science, technology, and engineering. The laboratory directors requested additional funding in Science Campaigns, ASC, and the Engineering Surety Campaign. This funding was intended to underpin the long-term health of the deterrent and provide a more rapid maturation of technologies that could be used in future LEPs. As a specific example, the laboratory director proposal recommended initiating a vigorous Exascale Initiative in fiscal year 2011. Fiscal year 2011 funding shortfalls are delaying work in these areas.

Finally, it should be noted that the proposed fiscal year 2011 increase provides for workforce stabilization, which is an encouraging step toward workforce aug-

mentation. At LLNL, the President's budget request would allow us to fill key vacancies, reinvigorating the critically skilled workforce underpinning the SSP.

Dr. HOMMERT. The Nuclear Security Enterprise Integration Council (NSEIC) developed a number of "uplift" scenarios, ranging from a $400 million increase to a $1.8 billion increase. At each scenario level there were different impacts to scope and schedule. The increase allocated in the President's budget fell within our planning scenarios. Specifically for the programs where there is a major effort at SNL, the fiscal year 2011 budget adequately supports those programs. It will be important to annually reassess budget requirements as technical requirements and timelines become firm.

25. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, as a result of earmark pressures on coveted water projects, there is concern that the appropriators are not going to be able to fully fund the President's fiscal year 2011 budget request for the NNSA. Without a bipartisan commitment to provide adequate and sustained resources, do you believe we will be able to maintain the level of confidence necessary to certify the stockpile without underground testing?

Dr. ANASTASIO. The NPR provides the necessary policy framework, which can lead to a long overdue national consensus on nuclear policy for the United States. The fiscal year 2011 request provides a positive first step in providing the needed fiscal resources needed by the nuclear enterprise to sustain the nuclear deterrent into the future.

Today, I judge that the stockpile is safe, secure, and effective. I can make the judgment with confidence based on the investments made in the SSP since the cessation of nuclear testing in 1992. As the stockpile continues to age, we as a Nation must continue to invest in the required experimental, computational, simulation, and modeling tools needed by scientists and engineers to understand, diagnose, and correct stockpile issues as they arise. I am cautiously optimistic that we can address the challenges faced by the program with sustained commitment from multiple administrations and Congresses with acceptable levels of risk. As we go forward it will be critical that the program is balanced, and that it maintains flexibility to meet changing requirements.

Dr. MILLER. Increased investment is required to revitalize the complex, support the necessary planned LEPs, and sustain the science and technology capabilities that underpin the annual assessment and maintenance of the U.S. stockpile. Without sustained funding beginning with the President's fiscal year 2011 budget request, I would be very concerned about the future. The program cannot be sustained if the declining funding trajectory of the past several years for the NNSA continues. The laboratories' capabilities related to the assessment and certification of the stockpile has been eroding; the rate of acquiring key experimental data has been slowing and key capabilities in high performance computing have not been advancing as rapidly as we prefer. The Nation's deterrent requires annual support of a sustainable SSP by successive administrations and Congresses in order to maintain an effective national strategic deterrent.

Dr. HOMMERT. Throughout its history the nuclear weapons program has had the support of Congress as a fundamental component of our national security. Over the past 15 years, the stewardship program, which provides the opportunity for all three laboratories to develop tools that are essential to sustaining the stockpile in the absence of nuclear testing, has received strong bipartisan support. It will be essential to continue this as we now commit to an extensive and necessary set of LEP activities. I cannot speak directly to the impact of the congressional committee structure, only to the importance of sustained bipartisan support for the deterrent.

26. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, in Dr. Anastasio's prepared remarks he stated that he fears "that there is already a gap emerging between expectations and fiscal realities" and that he is "concerned that in the administration's section 1251 report, much of the planned funding increase for weapons activities do not come to fruition until the second half of the 10-year period." Can you please elaborate and do you feel that some of that funding should be shifted to the first half of the 10-year period?

Dr. ANASTASIO. My concern refers to the need for sustainable investments that carry across multiple administrations and Congresses. Many of the science, technology, engineering, and infrastructure investments are planned for the second half of the next decade. These investments must be implemented within an uncertain and challenging financial future facing the Nation.

Significant budgetary declines in nuclear weapons funding have been seen many times when the Nation has faced difficult fiscal realities. The President's fiscal year 2011 budget request is a positive first step in the fiscal implementation of the road-

map to sustain the long-term safety, security, and effectiveness of the stockpile. While shifting some funds to the first half would provide some near-term relief it would reduce the out-year funding when the financial risks are even greater. The roadmap is a reasonable path to achieving these ends, and it must be fully implemented.

Dr. MILLER. I do share Dr. Anastasio's concerns. Funding must be appropriately allocated and sustained for several decades across the various SSMP accounts in order to maintain a balanced program. The three primary areas within the program are: (1) the science and technology base that underpins our understanding of an aging stockpile, which includes a reinvigorated surveillance program; (2) the LEPs to keep the systems safe, secure, and effective; and (3) the modernization of the enterprise's facilities and infrastructure. The baselines for the LEPs and several large construction projects, namely the CMRR facility and the Uranium Production Facility (UPF) are still maturing and their total costs are not yet known.

NNSA's funding profile should reflect the workload of the complex in any given year consistent with the stage and anticipated pace of the various projects within the SSMP. Until these baselines are finalized, it is difficult to assess the funding requirements of any given year.

Dr. HOMMERT. In some areas it would be preferable to have more of the funding available earlier. However, the exact funding profile is much less important than the imperative of a sustained national commitment to fully fund the program over the coming two decades, starting in fiscal year 2011. The immediate imperative of the B61 LEP has received substantial near-term funding.

27. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, in Dr. Hommert's prepared remarks he stated that the future of SSMP presents a number of challenges and that we must "ensure that resources are commensurate with the requirements and expectations." How well do you feel the fiscal year 2011 budget and projected out-years funding address the challenges ahead?

Dr. ANASTASIO. The President's fiscal year 2011 budget request represents a positive first step in the fiscal implementation of the roadmap to sustain the long-term safety, security and effectiveness of the stockpile. The budget plan for the out-years also moves in the right direction to achieving the roadmap.

I want to emphasize the entire roadmap must be fully implemented, including the science, technology, engineering, and infrastructure investments planned in the second half of the decade. I am cautiously optimistic that with sustained commitment from multiple administrations and multiple Congresses that we can address the challenges faced by the program with acceptable levels of risk. As we go forward it will be critical that the program is balanced, and that it maintains flexibility to meet changing requirements.

Dr. MILLER. The budget increase for the NNSA in the President's fiscal year 2011 proposed budget is a positive first step toward revitalizing the nuclear weapons complex. The budget request seeks to reverse recent downward funding trends and reflects the need for increased investment to maintain sufficient capability to ensure the viability of the U.S. stockpile. The proposed budget outlined in the 1251 report, which includes balanced investments in stockpile maintenance, science and technology, and infrastructure recapitalization, is required to sustain the nuclear deterrent.

There are two large facilities that must be built (the CMRR facility and the UPF) and two LEPs that must be conducted over the course of the next decade. The nature of NNSA's work is quite challenging, particularly the construction of very complex, one-of-a-kind facilities, which makes out-year budgeting challenging. Working with NNSA, the complex has begun to develop baselines for the major construction projects and the next two proposed LEPs. Out-year funding requirements could present a significant challenge depending on the full costs of the LEPs and major construction projects. For these types of projects, it is very important to provide flexibility and appropriate contingency that reflects the existence of many and differing sources of uncertainty within each project. At this point in time, it is difficult to say exactly what the right amount will be in any given year or over the 10-year horizon because the baselines for these complex facilities are still maturing. Certainly, fiscal year 2011 increase provides welcome relief from the constrained budgets and eroding purchasing power of the last several years.

Dr. HOMMERT. We have confidence that the fiscal year 2011 budget, if appropriated at the level of the President's budget request, is sufficient to support the highest priority SNL activities for the nuclear weapons program. Completion of the 6.216.2A study for the B61 LEP will allow us to better establish the required funding profile beyond fiscal year 2011.

28. Senator McCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, does the budget's allocation of resources provide much, if any, room for error?

Dr. ANASTASIO. I view the NNSA's fiscal year 2011 budget request as a positive first step and I urge its approval by Congress. I am cautiously optimistic that with sustained commitment from multiple administrations and multiple Congresses that we can address the challenges faced by the program with acceptable levels of risk. Further, I believe that we need to be focused not on a single year's budget, but rather on a long-term sustainable program that is both balanced and flexible as new costing information comes available on the nuclear facilities and on the planned LEPs.

Dr. MILLER. In my opinion, there is no fat in the program of work that has been planned and, in fact, significant risks exist; therefore, there is no room for error. Indeed, even successful execution of the proposed program of work within the budget requested is dependent on achieving significant improvement in the overall efficiency of the governance process. Over the last several years, we have eliminated redundancies and implemented efficiency improvements in our efforts to minimize, to the extent possible, the impact of the recent budget declines we have experienced. We are as lean as a prudent level of risk will allow. The fiscal year 2011 budget proposed by the administration is a positive first step toward revitalizing the NNSA's national security enterprise. The fiscal year 2011 budget request seeks to reverse past funding trends and reflects the need for increased investment to maintain sufficient capability to ensure the viability of the U.S. stockpile. Working with the NNSA, the complex has begun to develop baselines for the major construction projects and the next two proposed LEPs. It is difficult to say exactly what the right amount will be in any given year or over a 10-year horizon until the baselines for these facilities and LEPs are firmly established. Out-year budgets may have to be adjusted to support both the full costs of the LEPs and major construction projects and costs of sustainable core science, technology, and engineering capabilities. It will be very important to provide the flexibility and contingency appropriate for these complex large-scale, often one-of-a-kind, projects.

Dr. HOMMERT. The magnitude of the required work scope over the coming decade is challenging, as we extend the lifetimes of key warheads in the stockpile and invest in our infrastructure and scientific capabilities. We must manage our resources very carefully, and recognize that periodic reevaluation will be necessary.

29. Senator McCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, are there any requirements currently unfunded within your facilities?

Dr. ANASTASIO. Although I am pleased with the proposed fiscal year 2011 budget, I remain concerned about the longer-term sustainability, in particular on the accounts that fund facility operations, like RTBF. The current fiscal year 2011 LANL RTBF budget target increases by 3 percent over the fiscal year 2010 budget authority, but is followed by 3 years of steady decline in the current Future Year Nuclear Security Plan (FYNSP) targets. Increased demands on the RTBF budgets at LANL have already begun to rise with a peak requirements case expected in fiscal year 2012 during the current FYNSP and the next significant increase expected in fiscal years 2016/2017 with the potential start-up of the replacement Radiological Liquid Waste Treatment Facility. LANL will work within the budget targets to develop a plan that meets all nuclear safety, security, and compliance requirements first; all non-nuclear safety, security, and compliance requirements second; and all remaining warm standby activities within remaining budgets—which may require halting programmatic work in facilities that cannot remain appropriately operational within the funding constraints.

As I have stated in previous testimony, it is still important to improve the balance within the program and I also remained concerned about the issues between scope and fiscal realities. Much of the existing physical infrastructure at LANL is old, 50 percent of the buildings are greater than 40 years old. In addition, the scientific equipment at the laboratory must continue to be refreshed as new technology becomes available and we must be able to effectively use our key scientific capabilities, such as Dual-Axis Radiographic Hydrodynamic Test (DARHT), LANSCE, and NIF; and continue to advance toward the ability to perform computing at the Exascale.

Dr. MILLER. The President's fiscal year 2011 budget request is a good start, helping to alleviate the downward pressure on the top line. However within the President's fiscal year 2011 budget request, the near-term budget pressure at LLNL continues to be most significant in operations of facilities within the Readiness in Technical Base Facilities (RTBF) account. RTBF is intended to provide required core infrastructure support to the weapons laboratories and plants. The President's fiscal year 2011 budget request included $80 million for LLNL's RTBF operations; this is

$6 million below the amount needed to maintain stable funding necessary to meet our requirements.

At LLNL, the RTBF account essentially funds three major facilities that support for NNSA programs (and some work for other U.S. Government agencies): (1) Decontamination and Hazardous Waste Treatment Facility; (2) Superblock plutonium facility; and (3) our high explosives facilities at Site 300 which is interconnected with our High Explosives Applications Facility. Adequate RTBF funding is necessary to comply with safety standards for the operations of these facilities. LLNL is in continual discussions with NNSA to address the $6 million shortfall in RTBF. However, we remain concerned that we will be increasing the risk of compliance issues with regard to these facilities without full funding for LLNL's RTBF account and that our ability to respond to emerging safety issues in nuclear and high hazard facilities will erode.

LLNL's infrastructure will continue to underpin annual assessment and stockpile certification for the foreseeable future.

Dr. HOMMERT. While the recently approved fiscal year 2010 reprogramming will alleviate much of the B61 LEP technology maturation shortfall, further work is required with NNSA to address key facility and infrastructure requirements. For SNL these include the second phase of our Test Capabilities Revitalization project (TCR Phase 2) and upgrades to Tonopah Test Range (TTR). TCR Phase 2 is urgently required to ensure full support of the design and development activities for the B61 LEP. We are working with NNSA to pursue funding for this project in fiscal year 2011. Upgrades at TTR are required to support B61 LEP development flight testing.

30. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, do you foresee any instances where resources above the administration's request may be needed in fiscal year 2012 or beyond?

Dr. ANASTASIO. The laboratories will work closely with NNSA to develop realistic financial plans that meet stockpile responsibilities, sustain the necessary science, technology and engineering, and construct, and maintain needed physical infrastructure. In particular, restoring the required scientific and physical infrastructure is essential. When coupled with pension challenges, this will take time and sustained support from multiple administrations and Congresses. I recognize the Nation faces fiscal challenges, and I will ensure efficiency and accountability in executing the laboratory's responsibilities.

Dr. MILLER. There are several areas where additional resources may be required. There are two large facilities that must be built, the UPF and the CMRR facility, two LEPs that must be conducted over the next decade; and the Nation must sustain the science and engineering capabilities to support these LEPs and the annual assessment process. Each area has its own unique challenges. The construction of very complex, one-of-a-kind facilities makes out-year budgeting quite uncertain. The NNSA and the complex have begun to develop baselines for the major construction projects and the next two proposed LEPs. Future budget requirements could present a significant challenge depending on the full costs of the LEPs and major construction projects. For these types of projects, it is very important to provide flexibility and appropriate contingency that reflects the existence of many and differing sources of uncertainty within each project. It is difficult to say exactly what the right amount will be in any given year or over a 10-year horizon until the baselines for these facilities and LEPs are firmly established. The budget estimates will need to be evaluated annually based on the evolving baselines of these projects. The science and technology base upon which the program relies must also be nurtured and sustained. In this regard, funding for an Exascale simulation capability has yet to be identified.

Dr. HOMMERT. Over the next several years, SNL has a number of funding issues that need to be addressed. These are small in comparison with the overall nuclear weapons program budget, but still critically important to our success. One of the larger funding requirements is the recapitalization of obsolete tooling and equipment in our trusted microelectronics fabrication facility. This will require an investment of approximately $100 million over the next few years. Another example is the need to strengthen our materials science capability, which has degraded in recent years due to resource constraints. Materials science is a critical capability over the entire nuclear weapons life cycle. The adequacy of the budgets in fiscal year 2012 and beyond to support LEPs other than the B61 will not be well-understood until the scopes and schedules of these LEPs are better defined.

NEW START SAFEGUARDS

31. Senator MCCAIN. Dr. Anastasio, in your prepared remarks you asserted that one way to assure the long-term stability of funding and maintain focus across multiple administrations and Congresses would be to establish safeguards similar to some used in past arms control treaties. Could you specify more directly on what sort of safeguards you believe should be included as conditions for START ratification?

Dr. ANASTASIO. Safeguards such as increased research and development, improved monitoring and verification capabilities, preparations to respond to noncompliance or the collapse of a treaty, et cetera, have long been a feature of arms control agreements (e.g., SALT I and II, TTBT, and PNET) and, in my view, would be one mechanism to consider for New START. Such safeguards would help ensure the long-term sustainability of stockpile stewardship, infrastructure modernization, and monitoring and verification programs on which the laboratory's missions and U.S. security depend today and, even more so, as numbers are reduced further.

With these considerations in mind, I believe it would be useful for the administration and Congress to consider safeguards for the New START treaty. Such safeguards would be designed to ensure a long-term commitment to and continued funding of the broad range of activities needed to sustain the stockpile; and to maintain and modernize facilities and programs to ensure the continued application of human scientific resources to those programs on which continued progress in sustaining the nuclear deterrent depends.

Today, the assessment of the stockpile is reported in annual assessment letters from the three laboratory directors and the Commander of Strategic Command (STRATCOM). I would recommend that these procedures be modified such that these reports and letters be sent concurrently to both the President and relevant committees of Congress. In addition, an annual unclassified letter from the three laboratory directors and commander of STRATCOM to the President and Congress could be required on the health and status of the stockpile, the NNSA complex, and the program. Alternatively, Congress could hold an annual open/closed hearing on these same subjects.

INTELLECTUAL INFRASTRUCTURE

32. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, the impending intellectual brain-drain is a significant concern and heightens the importance of recruiting the next generation of weapons designers. Do you foresee any difficulty in recruiting new weapons engineers in an environment driven by the recent NPR that discourages work on new designs?

Dr. ANASTASIO. I remain concerned about developing the workforce for the future and believe that this is one of my most important jobs as the LANL Director. I am confident that the scope of work outlined in the NPR is sufficiently challenging to help us attract and retain the "best and brightest". LANL has been successful in recruiting by utilizing our strong post-doctoral fellowship programs and internal graduate and undergraduate student programs. Our student programs at the laboratory continue to bring excellent students into the laboratory and provide a strong recruiting mechanism. Currently, the laboratory has over 400 post-doctoral fellows and hosted over 1,300 students during this summer. Additionally, the national laboratories are utilizing DOE- and NNSA-funded programs like the Stockpile Stewardship Graduate Fellowship Program and the Computational Science Graduate Fellowship Programs to find and recruit the best and brightest.

The key to recruitment is sustaining the strong science funding that is essential to carry out the full set of scientific research and development. As I have argued before, many of the investments of stewardship are coming to fruition, notably the DARHT Facility at LANL, the NIF at LLNL, and the MESA facility at SNL. However, just as the Nation needs to reap the benefits of these investments, the need to recapitalize the infrastructure and the growing operational costs from the ever-increasing safety, security, and environmental standards, make it extremely difficult to maintain, use or enhance these stockpile stewardship tools so necessary to preserve the deterrent, to further other national security goals, and to ensure recruitment and retention of the best scientists.

Dr. MILLER. Maintaining intellectual capabilities and technical competencies is a priority for the national laboratories. Success in sustaining workforce excellence depends on the laboratories engaging in a compelling national program with sufficient funding over the long term. The program must provide opportunities for stimulating scientific research and engineering advancements to attract, retain, and continue to train the talent necessary to fulfill the challenging mission of maintaining our nu-

clear deterrent. In addition, the laboratories must be able to provide a competitive set of benefits and work-life programs. I believe that if the funding increase is provided, we have a compelling national program with opportunities for stimulating research to exercise the talents of the laboratories, which will enable us to maintain a skilled workforce.

A balanced program that promotes a compelling SSP with a sustained science, technology, and engineering (ST&E) effort is needed to provide the pipeline of skilled personnel to meet program demands and ensure that our deterrent remains second to none in the future. The program vision and objectives outlined in the NPR require vigorous ST&E. ST&E activities must provide adequate opportunity to exercise skills in the complete design-through-production cycle, which is essential training for laboratory and production plant personnel. Senior administration officials have made it clear that the NNSA laboratories have the flexibility, responsibility, and authority to study the complete spectrum of potential options, which includes replacement, for each future LEP in order to provide the Nation's decisionmakers with our best technical input upon which to base down-select decisions. Consistent with this guidance, NNSA's 1251 report includes the following statement:

"The laboratory directors will ensure that the full range of LEP approaches, including refurbishment, reuse, and replacement of nuclear components are studied for warheads on a case-by-case basis."

LLNL welcomes NNSA's assignment responsibility of the W78 LEP to this laboratory. This program of work is a vital element in maintaining the competency and capability of LLNL's design and engineering cadre through an integrated system design/engineering/manufacturing process. The work will serve to attract highly trained and motivated workforce needed to sustain nuclear deterrence.

Finally, I add that we are all aware of the challenges caused by rising healthcare costs and pension liabilities. As we move forward to resolve these issues, it is important to keep in mind that they have a significant influence on our ability to recruit and retain world-class scientific, engineering, technical, and operational talent.

Dr. HOMMERT. NPR guidance on new designs applies primarily to the NEP components. SNL's primary responsibilities are for non-nuclear components whose underlying technologies evolve and change at a rapid pace, mostly driven by commercial applications. As technologies change, we are forced to new designs to avoid sunset technology issues. This new design work offers challenges not seen in the commercial sector, namely design for operation over long periods in extremely harsh environments with near perfect reliability. Our data show that we continue to successfully recruit the best and brightest technical talent to the nuclear weapons program. The challenge going forward is to motivate, train, and retain them. Key to success in this area is clear evidence of an enduring national commitment to the U.S. nuclear deterrent, and the concomitant programmatic stability. Also important is challenging technical work and a work environment that includes state-of-the-art facilities, design tools, and technologies.

B61 REPROGRAMMING

33. Senator MCCAIN. Dr. Hommert, in your prepared remarks you stated that the B61 LEP is a primary driver for the current state of urgency across the weapons complex. DOE recently submitted a request to reprogram $53 million of the NNSA's fiscal year 2010 appropriated budget to support urgent funding for the B61 LEP study. How critical is the timely approval of this reprogramming request?

Dr. HOMMERT. The reprogramming request was approved by the four relevant congressional committees in August. The funds are essential to complete the B61 LEP 6.2/6.2A and the technology maturation required for the program.

34. Senator MCCAIN. Dr. Hommert, what would the consequences of denying such a request have on meeting the critical 2017 deadline?

Dr. HOMMERT. Please see the answer to question #33.

35. Senator MCCAIN. Dr. Hommert, is the fiscal year 2011 and the future years budget plan sufficient to support the fiscal year 2017 delivery of the B61 and to maintain the W76 schedule?

Dr. HOMMERT. The B61 LEP 6.2/6.2A study is underway and proceeding thanks to fiscal year 2010 reprogramming granted by Congress. The completion of this study in fiscal year 2011 will provide the information needed to assess the adequacy of outyear funding levels. The W76–1 is now in production, and so the funding needs

are largest at the plants going forward. My understanding is that the plants have adequate resources to maintain the current schedule.

36. Senator MCCAIN. Dr. Hommert, is there any likelihood of the B61 production slipping as a result of budget issues in fiscal years 2010–2012?

Dr. HOMMERT. We are currently viewing the fiscal year 2017 first production unit (FPU) date as a constraint on the program. Therefore, any budget shortfalls would impact the scope of the LEP. We strongly advocate the full scope program, and believe it would be ill-advised to miss the opportunity to incorporate 21st century safety and security features into the U.S. nuclear weapons stockpile through this LEP.

JASON STUDY

37. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, the JASON Defense Advisory Panel study of the LEP released last November has been interpreted to mean that there are no long-term reliability or aging concerns that can't be fixed by relying on a simple refurbishment approach. The NPR clearly concludes that refurbishment is only one of three options that must be considered, including reuse and replacement. Do you agree with that interpretation of the JASON study? If not, please articulate your views in an unclassified response.

Dr. ANASTASIO. As I have stated in a letter to Representative Michael Turner on January 25, 2010:

"The JASON report states that the lifetimes of today's nuclear weapons could be extended for decades, with no anticipated loss of confidence, by using approaches similar to those employed in LEPs to date. I do not agree with this assertion."

There are some materials and components in the current stockpile that cannot be replicated in a refurbishment, and there may not be suitable replacements that would allow sustained confidence in current systems. Moreover, there are several technical issues that cannot be addressed using a refurbishment-only approach, including the need to improve the safety and security of warheads. More specifically, as I stated in the letter to Representative Turner:

"There are several technical issues that cannot be addressed using a refurbishment-only approach:

- It is not possible to replace high explosive primaries with insensitives high explosives primaries or implement certain intrinsic surety features in today's stockpile using refurbishment because of current system constraints.
- Weapon aging, which can manifest itself in the form of corrosion, microscopic and macroscopic defects, et cetera, can lead to off-normal or feature-driven disruption to nuclear performance and diminish the available performance margin in low-margin weapons more rapidly than the weapons could be cycled through a refurbishment. This risk can be managed by preemptively increasing margins—but by amounts larger than those available through refurbishment.
- The JASON correctly recognizes that 'Substantial reductions in yield for various stockpile warheads, which may be called for in the forthcoming NPR, also could not be accomplished using refurbishment.'"

Further, the JASON report states that some reuse and replacement options require a more advanced understanding of weapons physics. While this is an accurate statement, it also applies to refurbishment. It does not mean that reuse and replacement options are precluded technically. In fact, the classified JASON report supports reuse and replacement options.

Dr. MILLER. The JASON report says "lifetimes of today's nuclear warheads could be extended for decades. by using approaches similar to those employed in LEPs to date." As was made clear in the NPR and DOE Secretary Chu's recent testimony, this administration is committed to studying all of the options available for future LEPs—including reuse, refurbishment, and replacement—on a case-by-case basis. I agree with the administration that we need to be able to study the full suite of LEP options.

Studying the full suite of LEP options provides the additional benefit of opening up the possibility of improving the safety, security, manufacturability, maintainability, and performance margin of the stockpile. Based on current and anticipated production capacity, it will take more than a decade to complete any LEP for the stockpile—independent of whether or not they include intrinsic safety and security improvements. Recognizing this, we are investigating a variety of options to improve safety and security of the stockpile warheads that grows over time with technology advances. As opportunities present themselves through planned LEPs, incorporation of advanced safety and security features should be considered and put forward as

one of the case-by-case options developed in studying the full suite of options—reuse, replacement, and refurbishment.

Dr. HOMMERT. In the JASON's study, the terms refurbish, reuse, and replace were applied primarily to the nuclear explosive package (NEP), and I defer to Dr. Anastasio and Dr. Miller in this regard. I would like to point out, though, that even if NEP refurbishments can address reliability and aging concerns, the refurbishment approach does limit the options we have for improving the safety and security of the stockpile. I therefore support the NPR guidance to consider all options. For SNL, most of the non-nuclear components in the stockpile today are based on obsolete technologies. Indeed, the most recently developed nuclear warhead, the W88, was designed in the early 1980s when cell phones weighed four pounds each. Massive investments by the private sector have led to staggering improvements in the miniaturization and functionality of microelectronics. These advances offer real opportunities for safety and security improvements to our nuclear weapons.

38. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, an area of significant concern involves the low rate at which we are actually surveilling systems in the current stockpile. Is the surveillance of weapons systems receiving the resources necessary to proactively predict potential aging issues?

Dr. ANASTASIO. My congressional testimony highlights my concern that we are not doing as much surveillance as we should be doing. I have also documented my concerns in my annual assessment letters and their supporting documentation. The fiscal year 2011 budget request begins to address this concern. Sustained management focus and additional funding will be required to redress this shortfall.

Surveillance involves two elements. The first is to understand the current condition of the warheads/bombs with respect to the original design intent. The second is to invest in the technical capabilities to enable predictions of future conditions. The need to invest in predictive technologies is driven by aging of the stockpile. Funding for these elements comes from different sources, each of which competes with other priorities.

Both elements grow in importance as the stockpile ages. Actual surveillance work and the analysis of the data produced reveal the condition of the stockpile and provide the inputs for evaluating future conditions.

Dr. MILLER. In recent years, the laboratory directors have expressed increasing concern about their knowledge of the actual state of the stockpile weapons in their annual assessment letters to the Secretaries of Energy and Defense. The fiscal year 2011 budget request is sufficient to prevent further atrophy of stockpile surveillance and provides the surveillance enterprise a modest boost. The surveillance enterprise is being scrutinized and the NNSA—together with the laboratories and production facilities—is working hard to define a right-sized forward-leaning surveillance program and the appropriate level of funding for it.

Such a forward-looking surveillance enterprise would be designed to meet the stockpile assessment requirements for small stockpile size. It would build upon the two components of the NNSA surveillance enterprise: Core Surveillance and Enhanced Surveillance. The primary function of Core Surveillance is to gather data on the state of the components and the materials in the stockpile. This is achieved through destructive testing, where nuclear explosives packages are broken down to their individual components and these are subsequently subjected to a number of laboratory tests to determine their condition and ability to fulfill their prescribed functions. Data derived from these tests are examined for trends that might suggest changes that could limit the lifetime of the component.

The primary function of Enhanced Surveillance is to develop advanced surveillance techniques and aging models that will allow the laboratories to project the future performance of the components and materials in the NEP and, most importantly, to anticipate failures with sufficient time to correct them given the accelerated aging experiments, accumulated data from Core Surveillance, and knowledge gained from long-term observation of similar materials in other NEPs in the stockpile.

Dr. HOMMERT. Surveillance Transformation is fundamentally about aligning our surveillance approach with the realities of a smaller, older stockpile. While we have made progress in creating fundamental predictive knowledge of important aging mechanisms, there is much more to do and the pace of our progress toward the ultimate goal of comprehensive understanding of the performance impacts has been less than satisfying. We consistently raise this concern in our Annual Assessment Reports (AAR). I am encouraged that the fiscal year 2011 budget identifies more resources for surveillance, however, I believe it will be important that surveillance receive increasing priority within the program going forward.

39. Senator McCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, do such shortfalls raise concerns that you are not finding all the problems?

Dr. ANASTASIO. Yes. Anomalous conditions in the stockpile and discovered through surveillance generally can be grouped into three categories: birth defects, deviations from design intent, and aging.

Recent modifications to the surveillance program of record and investment strategy reflect the change in emphasis from detecting birth defects to identification and assessment of aging phenomena. These adjustments include a modest reduction in the number of units actually surveilled combined with an increased number of new non-destructive diagnostic capabilities. Even with these changes, however, it is important to surveil the prescribed number of warheads/bombs with the complete set of necessary diagnostics to develop confidence that the actual condition of the stockpile is known and that the data are adequate to predict future behavior.

Dr. MILLER. Based on the results of our laboratory's most recent, comprehensive annual assessment process, I have concluded that the U.S. stockpile is safe, secure, and effective today. However, I continue to be concerned about the longer term and the sufficiency of our surveillance activities. The fiscal year 2011 uplift proposed by the administration is a positive first step toward revitalizing the national security enterprise, including surveillance. The fiscal year 2011 budget request seeks to reverse past funding trends and reflects the need for increased investment to maintain sufficient capability to ensure the viability of the U.S. stockpile. Within constrained budgets, the NNSA is working hard to define a right-sized forward-leaning surveillance program, encompassing both components of the surveillance enterprise that can meet the stockpile assessment requirements for a smaller stockpile size.

Additionally, I am encouraged by recent successes in developing and deploying improved technology for surveillance. An example of a recent success is the activation of the CoLOSSIS pit computed tomography facility at Pantex, jointly developed by LLNL and Pantex. This facility allows us to non-destructively examine weapon components in much more detail than we have been able to achieve with previous radiographic techniques. This facility has already returned interesting and unexpected data on a stockpile weapons system. Additional funding, however, is required to make full use of this and other tools.

Dr. HOMMERT. Our experience is that the more we look the more we find, both current and potential future issues. In that regard, any shortfalls are of concern. However, we have a strong cumulative technical basis for our current assessments of the stockpile state of health, and we will remain vigilant in our ongoing evaluations of the stockpile.

40. Senator McCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, as a result is it becoming more difficult to certify the weapons?

Dr. ANASTASIO. My annual assessment letters have repeatedly raised concerns about surveillance shortcomings. As my testimony before the committee points out "we are not doing as much surveillance as we should be doing."

Up to now, certification has been maintained by increasing our understanding of how the stockpile operates, examining impacts of aging, performing life extensions of the W87 and W76, and by determining that anomalies discovered in the stockpile do not affect safety, reliability, or performance of the warhead/bomb with respect to its military requirements. In some cases, certain stockpile management activities or adjustments in requirements against capabilities were required. In the future, these options may result in erosion of the specified military characteristics, perhaps to values unacceptable to DOD. Avoiding this will require increased scientific analysis and insight, which drives the need to sustain a robust science, engineering, and technology base in the nuclear security enterprise. Maintaining this base requires national consensus for adequate and sustained resources over the long term.

Dr. MILLER. Based on the results of our laboratory's most recent, comprehensive annual assessment process, I have concluded that the U.S. stockpile is safe, secure, and effective today. However, the laboratory directors have expressed increasing concern about their knowledge of the actual state of the stockpile weapons in their annual assessment letters to the Secretaries of Energy and Defense. Examples of the sources of concern are the declining rate of acquiring key surveillance data and the slow rate of developing enhanced surveillance capabilities. As I said in my most recent assessment letter, "reliability assessments should be withheld for systems without valid flight/environmental tests or surveillance data within the previous 2 years."

Prior to the fiscal year 2011 budget request, the overall funding trajectory for nuclear weapons complex would have put the deterrent at risk in the long term. The administration's fiscal year 2011 budget proposal is a positive first step toward revitalizing the national security enterprise, including surveillance. The budget request

seeks to reverse past funding trends and reflects the need for increased investment to maintain sufficient capability to ensure the viability of the U.S. stockpile. Within constrained budgets, the NNSA is working to define a right-sized forward-leaning surveillance program, encompassing both components of the surveillance enterprise that can meet the stockpile assessment requirements for a smaller stockpile size.

Dr. HOMMERT. Certification is the approach we use during the original fielding of a new warhead. Annual assessment is an ongoing process of strengthening our knowledge and confidence in the state of health of the stockpile over time. We have a robust, cumulative technical basis for each of our warheads, and we continue to assess them as being safe, secure, and reliable. From time to time we report a temporary increase in the uncertainty associated with our assessments due to testing shortfalls or other concerns.

41. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, I understand that the laboratories and plants have identified a shortfall of approximately $400 million above the requested fiscal year 2011 budget request. What are these unfunded requirements?

Dr. ANASTASIO. The current fiscal year 2011 LANL RTBF budget target increases by 3 percent over the fiscal year 2010 budget authority, but is followed by 3 years of steady decline in the current FYNSP targets. Increased demands on the RTBF budgets at LANL have already begun to rise with a peak requirements case expected in fiscal year 2012 during the current FYNSP and the next significant increase expected in fiscal year 2016/2017 with the potential start-up of the replacement Radiological Liquid Waste Treatment Facility. LANL will work within the budget targets to develop a plan that meets all nuclear safety, security, and compliance requirements first; all non-nuclear safety, security, and compliance requirements second; and all remaining warm standby activities within remaining budgets—which may require halting programmatic work in facilities that cannot remain appropriately operational within the funding constraints.

As I have stated in previous testimony, it is still important to improve the balance within the program and I also remained concerned about the issues between scope and fiscal realities. Much of the existing physical infrastructure at LANL is old, 50 percent of the buildings are greater than 40 years old. In addition, the scientific equipment at the laboratory must continue to be refreshed as new technology becomes available and we must be able to effectively use our key scientific capabilities, such as DARHT, LANSCE, and NIF; and continue to advance toward the ability to perform computing at the Exascale.

Dr. MILLER. The fiscal year 2011 budget increase proposed by the administration is a positive first step toward reversing the recent declining budget trends and revitalizing the nuclear weapons complex necessary to maintain the U.S. nuclear deterrent. The budget increase proposal was informed by a request developed a year ago by the NNSA laboratory directors for a 3-year funding ramp increase to the NNSA Weapons Activities account to create a balanced and robust program of work across the three primary areas in the SSP. These include: (1) the science and technology that underpins our understanding of an aging stockpile and supports a reinvigorated surveillance program; (2) the LEPs that are necessary to keep the systems safe, secure, and effective; and (3) the modernization of the facilities and infrastructure.

NNSA recognized the importance of a balanced program of work outlined by the laboratory directors, but chose to stretch the schedule for meeting deliverables. While some aspects of the laboratory's activities could proceed more rapidly if funding were available, this situation is different than an "unfunded requirement" or true shortfall.

The original laboratory director request contained additional funding in the following areas (compared to the fiscal year 2011 President's budget request):

- Surveillance. The increase in surveillance provided for a robust surveillance program. This program included both augmented data collection for the annual assessment process and development of advanced techniques for monitoring the health of the stockpile. NNSA is applying a risk-informed design process to allocate fiscal year 2011 funding the highest priority surveillance concerns. The President's budget request does include a modest increase in funding for surveillance.
- RTBF. The laboratory director proposal recognized the need for a robust facility infrastructure. The fiscal year 2011 budget request is a positive first step, but continues to fall short in RTBF at many sites across the complex. At LLNL, due to a $6 million fiscal year 2011 RTBF shortfall, funding for high hazard and nuclear facility compliance is marginal.

- Science, technology, and engineering. The laboratory directors requested additional funding in Science Campaigns, ASC, and the Engineering Surety Campaign. This funding was intended to underpin the long-term health of the deterrent and provide a more rapid maturation of technologies that could be used in future LEPs. As a specific example, the laboratory director proposal recommended initiating a vigorous Exascale Initiative in fiscal year 2011. Fiscal year 2011 funding shortfalls are delaying work in these areas.

Finally, it should be noted that the proposed fiscal year 2011 increase provides for workforce stabilization, which is an encouraging step toward workforce augmentation. At LLNL, the President's budget request would allow us to fill key vacancies, reinvigorating the critically skilled workforce underpinning the SSP.

Dr. HOMMERT. The NSEIC developed a number of uplift scenarios, ranging from a $400 million increase to a $1.8 billion increase. At each scenario level there were different impacts to scope and schedule. The increase allocated in the President's budget fell within our planning scenarios. Specifically for the programs where there is a major effort at SNL, the fiscal year 2011 budget adequately supports those programs. It will be important to annually reassess budget requirements as technical requirements and timelines become firm.

42. Senator MCCAIN. Dr. Anastasio, Dr. Miller, and Dr. Hommert, why are these unfunded requirements important?

Dr. ANASTASIO. The current fiscal year 2011 LANL RTBF budget target increases by 3 percent over the fiscal year 2010 budget authority, but is followed by 3 years of steady decline in the current FYNSP targets. Increased demands on the RTBF budgets at LANL have already begun to rise with a peak requirements case expected in fiscal year 2012 during the current FYNSP and the next significant increase expected in fiscal year 2016/2017 with the potential start-up of the replacement Radiological Liquid Waste Treatment Facility. LANL will work within the budget targets to develop a plan that meets all nuclear safety, security, and compliance requirements first; all non-nuclear safety, security, and compliance requirements second; and all remaining warm standby activities within remaining budgets—which may require halting programmatic work in facilities that cannot remain appropriately operational within the funding constraints.

As I have stated in previous testimony, it is still important to improve the balance within the program and I also remained concerned about the issues between scope and fiscal realities. Much of the existing physical infrastructure at LANL is old, 50 percent of the buildings are greater than 40 years old. In addition, the scientific equipment at the laboratory must continue to be refreshed as new technology becomes available and we must be able to effectively use our key scientific capabilities, such as DARHT, LANSCE, and NIF; and continue to advance toward the ability to perform computing at the Exascale.

Dr. MILLER. Retaining confidence in the deterrent value of the U.S. nuclear forces depends on a number of factors, including: confidence in the warheads themselves; confidence in the ability of the infrastructure to respond to issues that arise; and confidence in the underlying ST&E and the talent of the workforce to use the ST&E to accurately assess the health of the stockpile and manage arising issues. When any of these elements are at risk, so is the deterrent itself. The funding trend prior to fiscal year 2010 has put each of these elements at risk. The fiscal year 2011 budget increase proposed by the administration is a positive first step towards revitalizing the nuclear weapons complex necessary to maintain the U.S. nuclear deterrent. Recognizing the importance of a balanced program of work and the importance of the originally defined scope of work, the NNSA has chosen to stretch the schedule for meeting deliverables rather than change balance or the scope of work. To meet the original scope of work while relying on constrained budgets, NNSA applies a risk-informed decision process to balance annual work scope and schedule. As is always the case, while some aspects of the laboratory's activities could proceed more rapidly if funding were available, this situation is different than an unfunded requirement or true shortfall.

Dr. HOMMERT. At the funding level of the President's budget request, SNL has at least three outstanding funding concerns; these are small in comparison with the overall nuclear weapons program budget, and we are working to resolve these items with NNSA. These include renovation and modernization of some physical test facilities, recapitalization of outdated tooling and equipment in our microelectronics fabrication facility, and strengthening the material science capabilities at SNL. These are all critically important to our success in the upcoming design and development work for the LEPs.

43. Senator McCain. Dr. Anastasio, Dr. Miller, and Dr. Hommert, could a decision to defer work, some of which is directly related to facility maintenance and repair, affect your ability to fulfill your mission?

Dr. Anastasio. Yes. Deferring work, particularly facility maintenance and repair, can affect the laboratory's ability to fulfill mission. Every effort is made to understand mission needs and ensure facility repair priorities are consistent with planned mission activities. However, years of deferred maintenance and limited operational dollars have resulted in areas of facility weakness. At Los Alamos over 50 percent of the buildings are more than 40 years old.

Dr. Miller. Yes, deferring certain planned work, scientific campaigns and/or facility maintenance and repair, could impact mission deliverables. Delays could easily result in a domino effect across the integrated complex. Accordingly, the work scope across the complex must be carefully balanced.

For example, the RTBF program provides the infrastructure necessary to maintain the deterrent. The fiscal year 2011 budget is a first positive step, but continues to fall short in RTBF at many sites across the complex. With respect to LLNL's infrastructure, stable funding is required to maintain our nuclear facilities and high hazard facilities. Their maintenance and safe operations are required to meet mission deliverables. At LLNL, due to fiscal year 2011 RTBF constraints, funding for high hazard and nuclear facility compliance is on the tipping point. These facilities will continue to underpin the annual assessment and stockpile certification process for the foreseeable future, and they provide unique non-nuclear manufacturing capabilities. It is important that out-year funding be provided to meet the critical facility infrastructure requirements across the complex.

Dr. Hommert. There are a small number of essential facility upgrades that must be accomplished in order for SNL to successfully execute its design mission for the B61 LEP. If fully funded, the second phase of our TCR Phase 2 will address the most urgent of these needs. Deferral of TCR Phase 2 would result in a significant increase in risk to the B61 LEP program. Upgrades at the TTR are required to support the development flight test program for the B61 LEP. Replacement of aging equipment and tooling in our MESA microelectronics fabrication facility is also fundamentally important. Our ability to design and manufacture the strategic radiation hardened microelectronics required for upcoming reentry system LEPs depends on these upgrades.

44. Senator McCain. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, according to the JASON Panel's assessment, the "continued success of the stockpile stewardship is threatened by lack of program stability, placing any LEP strategy at risk." Has NNSA presented a plan that alleviates these stability concerns?

Dr. Anastasio. The elements of the plan are sound but sustained funding over 25+ years is necessary for implementation. The current plans for the budget show proposed increases to the programs for much of the next 10 years. The current proposed amount allows for the national security laboratories to start the investments needed for infrastructure improvements and sustaining the science necessary as the stockpile size is reduced. This is a positive first step.

As I stated in my testimony, the majority of the budget increases occur in the second half of the 10-year budget plan. Achieving an enduring commitment is important to sustaining the nuclear stockpile and to the ability to continue to certify the stockpile through the science of the SSP. If the budget comes under fiscal pressure in the out-years, science might again be squeezed out, which would raise significant concerns about maintaining the credibility of the deterrent. Sustained funding is needed to enable a safe, secure, and effective deterrent underpinned by science and the facilities that support it. I am concerned that fiscal pressure could create a major problem for the national laboratories and the science that is critical to the success of the program.

Dr. Miller. The proposed budget outlined in the 1251 report—including investments in stockpile maintenance, science and technology, and infrastructure—seeks to provide a reliable and stable funding profile for the enterprise. The NNSA's SSMP defines the scope of work for the out-years. Additionally, the laboratories and plants are working with the NNSA to develop baselines for the two main facility construction projects and the next LEPs. The required long-term investments outlined in the 1251 report support sustaining the confidence in our nuclear deterrent while reductions are made in the overall U.S. stockpile size. These increased investments are not just important, they are essential. NNSA's plans, which couple investments with the work scope defined in the SSMP, and the ongoing base-lining activity significantly help to alleviate concerns about program stability.

Dr. Hommert. In my opinion, the combination of: (1) the policy framework outlined in the NPR; (2) the high-level implementation plans established by the NNSA

fiscal year 2011 SSMP and DOD 1251 document; and (3) the funding profile described in the administration's fiscal year 2011 budget request document, forms a strong basis for programmatic stability going forward.

Dr. SCHWITTERS. I am not aware of any NNSA plan that alleviates concerns regarding program stability raised in our 2009 LEP report.

45. Senator MCCAIN. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, are there any institutional issues within NNSA that impede or threaten to impede stability?

Dr. ANASTASIO. At the national level, significant strides have been made by the administration to provide a level of program stability. The NPR and the President's fiscal year 2011 budget request form a core around which a national consensus can be built. Congressional approval of the fiscal year 2011 budget request will also assist. Within the NNSA, the confirmations of Dr. Don Cook and Neille Miller provide much-needed institutional stability. Dr. Cook's scientific background and decades of experience in the weapons community provides the leadership needed to sustain the program. His recent reorganization of the Defense Programs Headquarters organization to focus on the scientific and engineering challenges of sustaining the safety, security, and effectiveness of the stockpile is a another step for program stability. The Secretary and NNSA Administrator have recognized the need for structural and organizational changes to ease the regulatory burdens and thereby improve productivity at the laboratories, which we strongly support.

Dr. MILLER. It is vitally important that DOE revitalize the Federally Funded Research and Development Center (FFRDC) model that governs the relationship between DOE and the laboratories. The DOE Secretary, the Deputy Secretary, and the Under Secretaries have made it a high priority to improve the efficiency of the departmental processes and mechanisms for governance. The NNSA is working with the laboratories to identify institutional issues and address them. NNSA Administrator and Under Secretary for Nuclear Security Tom D'Agostino has established a trilaboratory advisory council to help map the future and is actively pursuing reforms to laboratory governance to ensure effective application of the laboratories' capabilities. In fact, the DOE recently chartered the National Academy of Sciences to review governance of the laboratories and we are looking forward to the results of that review.

Additionally, NNSA is seeking to strengthen partnerships with other agencies to better enable the application of NNSA in support of critical broader national security missions. I fully support Under Secretary D'Agostino's efforts to transform the NNSA Cold War nuclear weapons complex to a 21st century national security enterprise.

Dr. HOMMERT. The detailed programmatic structure of the nuclear weapons program, coupled with the high degree of congressional direction to each element of the program, has made it increasingly difficult to make even modest adjustments to the distribution of funding within the overall program. Greater flexibility for NNSA to manage and direct funding within the overall program would add efficiency and help us address evolving priorities. We recognize that methods of changing the funding distribution exist and are routinely exercised particularly the supplemental appropriations and reprogramming processes.

Dr. SCHWITTERS. The question of program stability was raised in the 2009 JASON report as part of our general concern regarding professional development and renewal of the technical manpower who provide the expertise and capabilities in science, engineering, and production absolutely essential to maintaining our Nation's nuclear deterrent. On this issue, JASON is in agreement with the laboratory directors, both current and past, that we face substantial challenges in recruiting and retaining the key technical people needed today and in the future.

The question raised is important, but I don't believe the answer to the larger issue of retention of technical staff can be found in institutional issues within NNSA. Rather, I think a renewed sense of purpose and trust between the labs, NNSA, Congress, and the greater scientific community is in order.

46. Senator MCCAIN. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, do your annual assessments continue to find any aging problems?

Dr. ANASTASIO. Yes. It comes as no surprise that warheads and bombs, all of which are older than 20 years (some are 30+ years old) continue to exhibit aging phenomena. These conditions are discussed in the joint Los Alamos and Sandia AARs and my annual assessment letters.

Dr. MILLER. Based on the results of our laboratory's most recent, comprehensive annual assessment process, I concluded that the U.S. stockpile is safe, secure, and effective today. Through our annual assessments, we do continue to uncover changes

in weapons due to aging and birth defects, which we then analyze to understand what impact (if any) they have on weapon effectiveness, safety, or security.

Dr. HOMMERT. As the nuclear weapons in our stockpile remain deployed beyond their original design lifetimes, aging is an ongoing concern. The specifics of our findings are outlined in the MRS.

Dr. SCHWITTERS. JASON does not participate in the annual assessment process. We were briefed extensively on results coming from annual assessments which have shown effects of aging on weapon components as described in our classified reports to NNSA.

47. Senator MCCAIN. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, are you finding any problems you did not predict?

Dr. ANASTASIO. Yes. Nuclear warheads and bombs are complex assemblies with components that are radioactive, volatile, and chemically active. When placed in a sealed volume for decades, some unpredicted behaviors reveal themselves. It is essential that we have a robust surveillance program to identify new issues and the science and engineering to respond when discovered.

Dr. MILLER. Yes, we continue to find changes in weapons that we did not predict. The new technologies and tools developed through the SSP have yielded tremendous insight into weapon anomalies we find, including both birth defects and issues arising from material aging.

Dr. HOMMERT. We have not predicted every problem we have found in the stockpile. The specifics of our findings are provided in the AARs.

Dr. SCHWITTERS. JASON does not participate in the annual assessment process. We were briefed extensively on results coming from annual assessments which have shown unanticipated problems with some weapon components usually associated with early design and manufacturing flaws revealed during surveillance of sample warheads taken from the stockpile.

QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

MODERNIZATION

48. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr, Hommert, and Dr. Schwitters, I remain concerned over our modernization efforts in the out-years. There is enough testimony and review to indicate a unanimous concern over the serious disrepair and neglect of our nuclear weapons stockpile and complex. I would like to reemphasize that we are the only major nuclear power not modernizing its weapons and our weapons are an average of 26 years old and most are 15 or more years beyond design life, while other nuclear countries to include Russia continue to modernize and replace their nuclear weapons. In general, all panel members indicated that sufficient funding is required in the out-years to meet delivery demands. Is the budget sufficient to support a fiscal year 2017 delivery of the B61 (gravity bombs) and to maintain W76 LEP schedules?

Dr. ANASTASIO. A B61 Phase 6.2/6.2A (Feasibility Study and Option Down-Select/Design Definition and Cost Study) has just begun with the very recent congressional approval, and is scheduled for completion at the end of fiscal year 2011 after being delayed for over a year. This study will produce a baseline design and cost estimate to support a fiscal year 2017 FPU. In my judgment, due to the delay in starting, accomplishing the correct scope for this life extension activity will be difficult by fiscal year 2017.

The desired number of W76–1 warheads at the completion of the production run has not been firmly fixed. Therefore, the adequacy of funding for W76–1 production in the out-years cannot be fully assessed.

Dr. MILLER. This is a question best directed to Dr. Anastasio, LANL, and Dr. Hommert, SNL. LANL and SNL are the laboratories of record responsible for the B61 LEP. I respectfully defer to them.

Dr. HOMMERT. The B61 LEP 6.2/6.2A study is underway and proceeding thanks to fiscal year 2010 reprogramming granted by Congress. The completion of this study in fiscal year 2011 will provide the information needed to assess the adequacy of out-year funding levels. The W76–1 is now in production, and so the funding needs are largest at the plants going forward. My understanding is that the plants have adequate resources to maintain the current schedule.

Dr. SCHWITTERS. To be sure, there are concerns regarding the present intellectual and physical infrastructure of the U.S. nuclear weapons complex, but, as the series of recent JASON reports document, science-based stockpile stewardship is suc-

ceeding in maintaining confidence in our nuclear stockpile without underground nuclear testing and in modernizing it to meet today's strategic requirements.

JASON examines technical aspects of our nuclear weapons efforts, not year-to-year budgets. My impression, however, is that providing stable funding and establishing shared priorities are important factors for achieving program goals.

49. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, what is the likelihood of the B61 production slipping due to budget problems in fiscal years 2010–2012?

Dr. ANASTASIO. If B61 life extension funding for fiscal year 2011 is provided as requested, the Phase 6.2/6.2A (Feasibility Study and Option Down-Select/Design Definition and Cost Study) can proceed. Product Realization Teams, which include the laboratories and production sites, will develop inputs regarding cost and schedule necessary to finalize funding levels for production in fiscal years 2012–2017. In my judgment, accomplishing the correct scope for this life extension activity will be difficult by fiscal year 2017.

Dr. MILLER. This is a question best directed to Dr. Anastasio, LANL, and Dr. Hommert, SNL. LANL and SNL are the laboratories of record responsible for the B61 LEP. I respectfully defer to them.

Dr. HOMMERT. We are currently viewing the fiscal year 2017 FPU date as a constraint on the program. Therefore, any budget shortfalls would impact the scope of the LEP. We strongly advocate funding for the full scope, and believe it would be ill-advised to miss the opportunity to incorporate 21st century safety and security features into the U.S. nuclear weapons stockpile through this LEP.

Dr. SCHWITTERS. At present, determining the scope of the B61 LEP is more important to establishing a realistic schedule for the B61 than are current budget details.

50. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, what risk is added if the B61 is delayed?

Dr. ANASTASIO. A delay to the B61 LEP will result in components reaching the end of their design life and no longer meeting operational requirements. In addition, this would delay enhancements in surety while there is growing concern about nuclear terrorism.

Dr. MILLER. LEPs are multi-year events of carefully sequenced work within a balanced SSP. Delays will create ripple/domino effects throughout the complex. Some technologies developed for the B61 LEP may prove useful for the W78 LEP, which has been assigned to Livermore. Delays in the B61 LEP could cause delays in other LEPs or raise the cost of other LEPs if significant technology maturation is required.

As to the other specific programmatic and technical risks, this is a question best directed to Dr. Anastasio, LANL, and Dr. Hommert, SNL. LANL and SNL are the laboratories of record responsible for the B61 LEP.

Dr. HOMMERT. There are end-of-life issues associated with some SNL components, and any delay will increase the risk of performance impacts.

Dr. SCHWITTERS. JASON has not studied this question.

51. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, is there sufficient funding for the W78 and W80 LEPs?

Dr. ANASTASIO. The NWC has established the phase 6.X process to provide a framework to conduct and manage refurbishment activities for existing weapons. Phase 6.2A (Design Definition and Cost Study) develops the cost estimates for the baseline design of the particular life extension activity under consideration. A determination that there is enough funding for the W78 and W80 life extension activities cannot be made until accurate and complete funding profiles are developed from the phase 6.2A study.

Dr. MILLER. The fiscal year 2011 President's budget request includes funding to initiate the study of life extension options for the W78. The baseline has not yet been established for the W78 LEP, as the study of the options has just begun. However, the 10-year plan does anticipate funding for the W78 LEP.

There is no funding anticipated for a W80 LEP.

Dr. HOMMERT. The President's budget request includes a significant funding increase for the W78 LEP over the FYNSP period, but the required funding levels are not fully established. Our current understanding is that there will be a joint W78 and W88 phase 6.1 study starting in September 2010, with a potential phase 6.2/6.2A study beginning in the 4th quarter of fiscal year 2011. An integrated development approach to the W78 and W88 LEPs will allow us to maximize the impact of our resources. The current schedule for the W80 LEP places it beyond the FYNSP

period. However, we are concerned about the resources required to sustain the W80 in the meantime.

Dr. SCHWITTERS. JASON has not studied this question.

NATIONAL NUCLEAR SECURITY ADMINISTRATION BUDGET

52. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, section 1251 of the National Defense Authorization Bill for Fiscal Year 2010 requires that the submission of a New START agreement to the Senate be accompanied by a plan to modernize the U.S. nuclear deterrent. All panel members indicated that there is concern over an emerging gap between expectations and fiscal realities, due to the planned funding increase not coming available until the second half of the 10-year period and the decline of the annual buying power. It is important to reemphasize that the NSEIC proposal recommended a budget of $7.34 billion in fiscal year 2011, $7.83 billion in fiscal year 2012, and $8.26 billion in fiscal year 2013 for weapons activities. Most alarming, the NNSA and the administration did not follow the advice of the NSEIC and submitted a request for $7.0 billion, $7.0 billion, and $7.1 billion over the 3 years ($340 million, $830 million, and $1.16 billion less than recommended). Did the laboratories provide their best estimates of the cost of requirements to the NSEIC?

Dr. ANASTASIO. Yes. The laboratories provided their best estimates of the cost requirements to the NSEIC as part of a budget planning process exercise. After analyzing the issues associated with the President's fiscal year 2011 budget request, I believe the fiscal year 2011 budget it is a positive first step forward. Further, I believe that we need to be focused not on a single year's budget, but rather on a long-term sustainable program that is both balanced and flexible as new costing information comes available on the nuclear facilities and on the planned LEPs.

Dr. MILLER. LLNL provided its best estimates of funding required for a balanced SSMP.

The fiscal year 2011 budget increase proposed by the administration is a positive first step toward revitalizing the nuclear weapons complex necessary to maintain the U.S. nuclear deterrent. Recognizing the importance of a balanced program of work, the NNSA has chosen to stretch the schedule for meeting deliverables rather than change balance or the scope of work. As is always the case, while some aspects of the laboratory's activities could proceed more rapidly if funding were available, this situation is different than an unfunded requirement or true shortfall.

The level of investment consistent with planned force reductions must grow over time to capitalize construction of new facilities to create an efficient production infrastructure, sustain a robust science, technology, and engineering core, manage the aging stockpile, support an increased level of LEP work, and maintain a critically skilled workforce. LLNL continues to work with its partners in the NNSA enterprise and NNSA leadership to support a sustainable and balanced program.

Dr. HOMMERT. The NSEIC developed a number of uplift scenarios, ranging from a $400 million increase to a $1.8 billion increase. At each scenario level there were different impacts to scope and schedule. The increase allocated in the President's budget fell within our planning scenarios. Specifically for the programs where there is a major effort at SNL, the fiscal year 2011 budget adequately supports those programs. It will be important to annually reassess budget requirements as technical requirements and timelines become firm.

Dr. SCHWITTERS. JASON has not studied this question.

53. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, if the complex received the full amount proposed by the NSEIC, would it be able to properly execute that money?

Dr. ANASTASIO. Yes. I believe that the proposed budget planning scenarios are executable.

Dr. MILLER. Yes, if Congress provided the NNSA with the full amount, I believe the complex could properly execute the associated work scope.

Dr. HOMMERT. The President's budget request, if fully appropriated, will result in an increase to SNL's weapons activities funding of approximately 20 percent relative to fiscal year 2010 levels. This additional funding is commensurate with the large body of work required at SNL for the B61 LEP. Through a strategic management decision earlier this year, we began staffing up for this program, and the recently approved reprogramming for fiscal year 2010 will align our fiscal year 2010 funding with our current staffing levels, placing us in a good position for the additional growth in fiscal year 2011. Further increases in funding, as might evolve in discussions between the NNSA and the DOD regarding additional requirements for a W88

Alt, and a common warhead design program, will be evaluated for resource needs and action will be taken to phase the work appropriately.

Dr. SCHWITTERS. JASON has not studied this question.

54. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, would increased funding in the first 3 years of the proposed budget alleviate some of the risk and concerns about our nuclear stockpile and future funding?

Dr. ANASTASIO. Yes, it would help alleviate some risks. In my view, it is even more important to do everything possible to ensure adequate long-term funding. Look first at the existing challenges and recognize how difficult overcoming them in the next 10 years will be:

- complete production of the W76–1;
- complete planning and delivery of the first B61–12;
- complete a study for the life extension of the W78;
- maintain the science, technology, and engineering base;
- utilize existing stockpile stewardship facilities (DARHT, LANSCE, NIF, Z, et cetera) to achieve their true scientific potential;
- design, build, and begin operation of two major multi-billion dollar nuclear facilities (CMRR and UPF); and
- sustain smaller, but still important, aging facilities.

When I consider this daunting list, I am concerned about the magnitude and scope of these activities and the fiscal commitments needed to manage them concurrently. Moreover, even modest inflation and other issues such as pensions may negatively impact the ability to sustain the stockpile for the long-term.

Dr. MILLER. The current uncertainties associated with developing baselines for LEPs and construction of large facilities is the largest source of concern with respect to future funding needs. Working with the NNSA, the complex has begun to develop baselines for the major construction projects and for the next two proposed LEPs. Since the baselines are still maturing, total costs are not yet known. There is work that could be accelerated with increased funding in the first 3 years of the proposed plan. As an example, the NNSA and DOE have yet to identify the funding required for an Exascale simulation initiative. It is vital that the program have sustained funding over a long period to provide balance and stability, accomplish the scope of work necessary, revitalize the complex, provide the scientific understanding and assessments needed to execute this mission, and conduct the planned LEPs. An immediate short-term infusion of funding will not be sufficient.

Dr. HOMMERT. The critically important technology maturation activities required to support the B61 LEP and future reentry system LEPs would benefit from additional funding earlier in the program. It would also be an advantage if we could complete some of the more urgent facility and infrastructure upgrades in the near term. We are working with NNSA to ensure the appropriate risk management approach given the current funding profile.

Dr. SCHWITTERS. JASON has not studied this question.

55. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, would the labs be able to execute additional funding over those years?

Dr. ANASTASIO. Yes. I believe that LANL would be able to execute additional funding over those years.

Dr. MILLER. Yes, additional resources could be absorbed and effectively applied.

Dr. HOMMERT. Please see the answer to question 53.

Dr. SCHWITTERS. JASON has not studied this question.

56. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, should the 1251 report and budget request be updated each year to reflect a current assessment of risks and technical and strategic requirements?

Dr. ANASTASIO. A disciplined, comprehensive and coordinated planning process could produce an annual long-term budget for the nuclear security enterprise that would benefit DOE, NNSA, the nuclear weapons laboratories, and the production plants. This product could be one way of informing Congress so that a defensible investment strategy could be sustained and stable funding could be established.

Dr. MILLER. Yes. Annual updates that reflect evolving requirements, progress on the baselines for the major efforts within the NNSA enterprise, and arising issues in the stockpile would be beneficial for the purposes of forecasting and planning. It is important to note that the nature of NNSA's work requires program flexibility because issues arise in the stockpile and requirements evolve. The scope of work and budgets will need to be correspondingly adjusted. Annual updates to the summary of the SSMP could provide a mechanism to outline the program's funding re-

quirements and projections. In addition, I would recommend consideration of an annual assessment of the health of the integrated enterprise be included as part of these updates. Both would the foster dialog to achieve a national consensus on programmatic requirements and expectations for a sustained SSMP.

Dr. HOMMERT. The administration's budget needs are updated annually as part of preparation for a budget proposal to Congress. This process in general looks at shorter timeframe than the 1251 document but still more than a single year. If Congress needs a longer-term (say 10-year) budget estimate, we would be willing to work within the framework of NNSA to support that process.

Dr. SCHWITTERS. JASON has not studied this question.

PERSONNEL AND CRITICAL SKILLS

57. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, we discussed briefly concerns over the loss of human capital. There has been substantial testimony over the last few years that indicate our nuclear research and development capability is dwindling, with a large amount of our experts due to retire in the next few years. What is the impact of losing such a large percentage of career employees?

Dr. ANASTASIO. It is true that the number of LANL technical staff devoted to nuclear weapon research, development, and engineering has declined in the past several years and that a significant number of retirements are anticipated in the next several years. One of my most important jobs as LANL director is to ensure that we, as an institution, are developing the workforce of the future. In fiscal year 2010, I authorized selected divisions at LANL to implement a more aggressive but selective hiring program. That process is underway. I believe that the technical challenges and work scope outlined in the NPR will be very helpful as we continue our recruitment efforts in the years ahead. The projected growth in the weapons program funding over the next several years will allow hiring to continue, and new staff will begin their training before a large number of weapon experts retire. Moreover, following retirement from LANL, a number of senior staff return on either a part-time basis or as guest scientists to mentor early-career staff.

Dr. MILLER. LLNL implemented a strategic workforce reduction plan to minimize the risks to the program; staffing reductions were a necessary consequence of recent declining budgets and increased costs during the past 5 years. While we have been successful in supporting the needs of the current stockpile, numerous critical skill areas have been reduced to only a handful of individuals, as evidenced in the following examples:

- LLNL's hydrotest execution capability was reduced from two fully capable teams to one small team, and experimental throughput has declined.
- One of the major science initiatives, known as the National Boost Initiative, has been delayed 3 years to date and extended beyond its original planned completion date due to lack of funding and available skilled staff to support this initiative.
- Additionally, warhead surveillance rates are lower, there are numerous examples of underutilization of stockpile stewardship facilities that have caused delays in key scientific deliverables for assessing the stockpile, and LEPs have been deferred.

LLNL is continuing to work very closely with the NNSA to manage available resources in a prioritized, structured way to ensure our national security mission requirements are met. The President's fiscal year 2011 budget request seeks increased funding to reverse the declining budget trends and provide stable and reliable funding levels to maintain sufficient capability to ensure the viability of the U.S. nuclear stockpile and the critically skilled workforce that underpins it.

Dr. HOMMERT. We are concerned about the fact that many of our experienced technical staff are over the age of 55. Their remaining careers will not span the upcoming LEPs. This puts a huge premium going forward on stable, multiyear, large-scale LEPs that provide opportunities for our new technical staff to work closely with our experienced designers on a full range of activities—from advanced concept development to component design and qualification, and ultimately to the production and fielding of nuclear weapon systems. Our data show that we continue to successfully recruit the best and brightest technical talent to the nuclear weapons program. The challenge going forward is to motivate, train, and retain them. Key to success in this area is clear evidence of an enduring, bipartisan national commitment to the U.S. nuclear deterrent, and the concomitant programmatic stability. Also important is challenging technical work and a work environment that includes state-of-the-art facilities, design tools, and technologies.

Dr. SCHWITTERS. A major factor in the loss of human capital in the nuclear weapons program was the sharp decline—approximately 30 percent—in science and technology development funding during fiscal years 2005 to 2009 while the overall nuclear weapons budget remained steady. The impacts are significant: opportunity costs of the weapons science research not being performed, loss of mentoring of younger scientists and engineers by experienced hands in the challenging technical areas crucial to stockpile stewardship, and the strong negative message sent to young scientists and engineers that weapons science is somehow not important to our country. In today's world without underground nuclear testing, confidence in the U.S. deterrent ultimately rests on the quality of the science and scientists in our weapons laboratories; the impact of losing a large percentage of career employees reduces confidence in our nuclear weapons program.

58. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, what is the incentive for younger engineers and scientists to dedicate their lives to this critical field?

Dr. ANASTASIO. Many people choose to dedicate their careers to nuclear weapons work out of a deep sense of duty to country and which has substantial technical challenges. The ability to retain this dedicated work force at LANL is based on several factors:

- challenging and demanding work;
- flexibility to pursue novel approaches to solving those multifaceted security challenges;
- state-of-the-art scientific, experimental, and computational tools on which to carry out their responsibilities;
- modern infrastructure; and
- a strong demonstration of executive and legislative branch support for the work and commitment to the laboratory staff for solving the Nation's security challenges.

Dr. MILLER. The fundamental incentive for young scientists and engineers to join this field is the opportunity to make a contribution to national security through important, challenging scientific and technical assignments. The SSMP provides a compelling opportunity to use advanced experimental and computational capabilities in cutting-edge research that leads to scientific discovery relevant to a number of national priorities. The administration's and Congress's commitment to a clear and long-term plan for managing the stockpile helps to ensure that the scientists and engineers of tomorrow will be able to engage in challenging cutting-edge research and development activities required for maintaining U.S. security.

Additionally, the laboratories, with the support of Congress and the administration, utilize funding provided through the Laboratory Directed Research and Development (LDRD) program to provide young scientists and engineers with opportunities to pursue innovative research projects that are competitively peer-reviewed. LDRD is a vital tool in the laboratories' recruiting and retention efforts.

One specific set of actions being undertaken by LLNL and SNL in California is the creation of the Livermore Valley Open Campus (LVOC). The LVOC will allow the two laboratories to enhance their research programs in a way that leverages and facilitates ready access to the expertise and facility investments already made by the NNSA while providing a dynamic, modern, and exciting place to work for young scientists and engineers. The LVOC will meet the laboratories' critical needs to substantially increase our engagement with the private sector and academic community to meet our mission objectives, stay at the forefront of science and technology by engaging the broader academic and industrial communities, and attract the best and brightest to ensure the workforce of the future.

Dr. HOMMERT. For the most part, young scientists and engineers that join SNL do so to serve the security interests of the Nation. Our primary driver from the initiation of the institution is "service in the national interest." This is more than a slogan to us, it is in fact the premise of all our work for both the nuclear weapons and work for others national security programs. However, in order for these staff to stay engaged, energized, and capable, we have to exercise their expertise. We do that through the combination of work options between the stockpile management activities (of which the B61 LEP is a significant opportunity) and our other national security work. We also energize these individuals through opportunities to work on and solve high visibility and high impact problems in areas such as counter-terrorism, energy security, support of the warfighter, and work to address emerging cyber threats.

Dr. SCHWITTERS. The incentives for young engineers and scientists to dedicate their professional lives to our nuclear weapons program include: (1) the opportunity

to work on technical problems of great importance to their country; (2) the opportunity to contribute solutions to highly challenging technical problems that trace their history to some of the greatest scientists and engineers of the past century; (3) access to world-class computational and experimental tools such as DAHRT and NIF; (4) participation in an outstanding technical community; and (5) opportunities to apply expertise in other areas important to our national security.

59. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, is there a perception among new engineers and scientists that joining Sandia is a dead-end job?

Dr. ANASTASIO. Many people choose to dedicate their careers to nuclear weapons work at Los Alamos out of a deep sense of duty to country. The nuclear weapons mission has always been the core mission at LANL. For many decades, this core has been a powerful driver and magnet for a broader range of related and reinforcing activities. These areas naturally align with the laboratory's national security missions and include energy research, climatology, bioscience research, nanotechnology, and high performance computing. Talented and energetic young people will always be attracted to an institution engaged in cutting-edge physics, engineering, computational simulation, and materials science. Sustaining these types of research and development activities will be a key element in hiring the scientists, engineers, and technologists needed to populate all of the laboratory's national security programs.

A polling of LANL graduate students, post-doctoral personnel, and early career staff has shown that most are impressed by the opportunities for meaningful research and development that the laboratory provides. However, there is a growing concern about the national commitment and about the risk acceptance posture, compared to major universities and corporations, that is making it difficult to compete for the best and brightest.

Dr. MILLER. SNL is a vital part of the NNSA enterprise and a respected scientific institution with an impressive set of accomplishments and an exciting future.

In fact, LLNL is working cooperatively with SNL in California to develop the LVOC, which will help both laboratories to attract and retain the best and brightest scientific and engineering talent. The LVOC will allow the two laboratories to enhance their research programs in a way that leverages and facilitates ready access to the expertise and facility investments already made by NNSA while providing a dynamic, modern, and exciting place to work for young scientists and engineers. The LVOC will meet the laboratories' critical needs to substantially increase our engagement with the private sector and academic community to meet our mission objectives, stay at the forefront of science and technology by engaging the broader academic and industrial communities, and attract the best and brightest to ensure the workforce of the future.

Dr. HOMMERT. SNL hiring data show that we continue to attract the best and brightest technical talent from the Nation's top science and engineering programs.

Dr. SCHWITTERS. I am not aware of any such perception regarding opportunities for new engineers and scientists at Sandia. Indeed, in our investigations of work performed there, Sandia seems to have had the most success in diversifying its mission to make it attractive to younger technical people.

60. Senator INHOFE. Dr. Anastasio, Dr. Miller, Dr. Hommert, and Dr. Schwitters, what is the impact of not having one design engineer on staff who participated in the development and testing of a new nuclear weapon?

Dr. ANASTASIO. In 1989 the United States ended the production of new nuclear weapons, 3 years later underground testing was halted. In response to these changed circumstances, Congress and the administration created the SSP "to ensure the preservation of the core intellectual and technical competencies of the United States in nuclear weapons." That program has been a remarkable success thanks to the significant investments made in experimental, computational, simulation, and engineering capabilities and the mentoring by development- and test-experienced engineers and scientists. These tools have allowed us to gain a better understanding of weapons performance, carry out several LEPs, and ultimately assess and certify the health of the stockpile to the President of the United States. All this work has allowed the laboratories to train and mentor the post-nuclear-testing generation of scientists and engineers. Sustained investments and challenging work scope at the labs must continue for the future to develop the next generations.

Dr. MILLER. The SSP has been extraordinarily successful in developing the tool set required to maintain the stockpile in the absence of testing and using those tools to train the next generation of stockpile stewards. The program was specifically designed to maintain the skills necessary in the absence of nuclear testing. The SSP's

above-ground experimental facilities, such as the NIF and DARHT facility, not only provide data required for stewardship, but also provide our weapons designers with opportunities to carry out complex, integrated physics experiments that stress and hone designer judgment as issues are investigated or potentially new phenomena are revealed. Additionally judgment is developed through computational simulation. Detailed simulations of weapons system performance continue to give new insight into weapons physics, often times beyond that available during the era of underground nuclear testing.

Of equal importance is providing adequate opportunity to exercise skills in the complete design through production cycle, which is essential for training of laboratory and production plant personnel. For example, the NNSA's assignment of responsibility for the W78 LEP to LLNL provides an essential path for maintaining the competency and capability of its design and engineering cadre through the exercise of an integrated system design/engineering/manufacturing program. Finally, involvement in the annual assessment process provides a basis for developing and exercising the judgment of new nuclear weapons staff in dealing with difficult issues related to nuclear design and engineering, in much the same way that the development of nuclear weapons and underground testing did.

The NNSA and the laboratories have made a concerted effort to mentor, train, and validate the skills of the next generation of the Nation's stockpile stewards at a time when scientists and engineers are available who were trained during the period of extensive weapon development programs and nuclear testing. I am confident in the capabilities of LLNL's workforce.

Dr. HOMMERT. SNL still has design engineers and scientists on roll who participated in the development and testing of the most recently fielded new warhead, the W88. We also have a large number of technical staff who recently worked on the W76–1 LEP. Several Alts and modifications, and limited life component exchange actions have required non-nuclear component development and testing on an ongoing, albeit limited, basis.

Dr. SCHWITTERS. Nuclear weapons designers play crucial roles in the stockpile stewardship program—they are the overall system integrators who are responsible for understanding everything that is known about the systems under their purview. The span of information includes archived data from pertinent underground nuclear tests, data on components as they were manufactured, results of non-nuclear experiments including hydrodynamic tests and subcritical experiments, experience gained from simulation codes describing the system, and data obtained through surveillance of stockpile warheads.

Of course, advice and experience of veterans who originally developed nuclear weapons and conducted the underground tests have been most valuable in mentoring new generations of designers, but today's questions, tools, methods, and knowledge base are quite different than those of earlier times. The technical challenges facing today's designers are still significant, however. This is good news, in my opinion, because it provides strong incentives for good technical people to work in our nuclear weapons program.

61. Senator INHOFE. Dr. Miller, you stated that the current LEP approach (refurbishment only) limits the range of safety and security features that can be incorporated into certain weapons systems and that all potential approaches—or, more likely, combinations of approaches—need to be examined. Do you believe we should allow our labs to study what is possible in nuclear design in order to maintain our current expertise?

Dr. MILLER. Yes. As noted in the NPR, the NNSA laboratories should have the flexibility, responsibility, and authority to study the complete spectrum of potential options, which includes refurbishment, reuse, and replacement, for each future LEPs on a case-by-case basis in order to provide the Nation's decisionmakers with our best technical input upon which to base down-select decisions. NNSA's 1251 report reinforces this responsibility and authority:

"The laboratory directors will ensure that the full range of LEP approaches, including refurbishment, reuse, and replacement of nuclear components, are studied for warheads on a case-by-case basis."

There are a variety of safety and security features available and/or proposed for the U.S. stockpile at this time. By exploring all three approaches, as opportunities present themselves through planned LEPs, incorporation of advanced safety and security features should be considered and put forward as part of the case-by-case options developed. Ultimately which safety and security options are incorporated into the weapon system should be decided based upon a number of factors, including military requirements, Service (Navy and/or Air Force) needs, and consistency with NNSA's operational and programmatic criteria, all while ensuring that the warhead

is safe, secure, and effective in all environments it might encounter. Studying reuse, refurbishment, and replacement options for the stockpile and applying them on a case-by-case basis coupled with a balanced SSMP with sustained funding will preserve the skills required to maintain the nuclear stockpile into the future with an acceptable level of risk.

62. Senator INHOFE. Dr. Miller, when was the last time the United States designed a new nuclear weapon?

Dr. MILLER. The last time the United States completed a new nuclear weapon design was when Los Alamos and Sandia developed the W88 warhead before the cessation of nuclear testing. The W88 began production in 1988. While the W88 represented new system capabilities, the NEP was a straightforward extension of previously developed and tested technical capabilities. In that sense it did not represent any significantly new technologies. The most recently evaluated truly new technologies were associated with the Strategic Defense Initiative and were examined and tested in the mid-1980s.

63. Senator INHOFE. Dr. Miller, do we allow our engineers and scientists to design new weapons?

Dr. MILLER. We have not had a requirement to design a new nuclear weapons system for several decades. Our efforts are focused on extending the lifetimes of existing weapons systems through evaluation of a spectrum of options, including refurbishment, reuse, and replacement based on previously tested designs.

64. Senator INHOFE. Dr. Miller, does the United States today have the ability to design and produce a new nuclear weapon—people, equipment, raw materials, and facilities?

Dr. MILLER. Today, the United States does have the ability to design and produce a newly manufactured weapon. Designing a truly new weapon, one that represents new technologies in the NEP, today would rely on the capabilities (human, tools, and facilities) developed in the SSP. Verifying the performance of a truly new weapon—that includes technologies never before tested in a nuclear event—would require the resumption of underground testing. The capability to return to nuclear testing to verify the performance of the truly new or newly manufactured system, while not recently exercised, has been carefully preserved in the weapons complex. If the new weapon were a simple design extrapolation from the present stockpile, the present production complex would be able to successfully build it, albeit at a slower pace than the manufacturing rate during the Cold War. Producing more radical designs could be more challenging for the production complex.

NUCLEAR WEAPONS RESEARCH AND PRODUCTION FACILITIES

65. Senator INHOFE. Dr. Anastasio, you have strongly endorsed investments in the UPF and CMR Replacement Nuclear Facility but have stated there are many other essential facilities across the complex and that Los Alamos requires investments. I understand that the laboratories and plants have identified $400 million in needs above $7.0 billion for fiscal year 2011. What are these unfunded requirements and why are they important?

Dr. ANASTASIO. The current fiscal year 2011 LANL RTBF budget target increases by 3 percent over the fiscal year 2010 budget authority, but is followed by 3 years of steady decline in the current FYNSP targets. Increased demands on the RTBF budgets at LANL have already begun to rise with a peak requirements case expected in fiscal year 2012 during the current FYNSP and the next significant increase expected in fiscal year 2016/2017 with the potential start-up of the replacement Radiological Liquid Waste Treatment Facility. LANL will work within the budget targets to develop a plan that meets all nuclear safety, security, and compliance requirements first; all non-nuclear safety, security, and compliance requirements second; and all remaining warm standby activities within remaining budgets—which may require halting programmatic work in facilities that cannot remain appropriately operational within the funding constraints.

As I have stated in previous testimony, it is still important to improve the balance within the program and I also remained concerned about the issues between scope and fiscal realities. At Los Alamos over 50 percent of the buildings are more than 40 years old.

66. Senator INHOFE. Dr. Anastasio, could the laboratories have addressed these issues with additional fiscal year 2011 funds?

Dr. ANASTASIO. As I said previously in my testimony, " . . . the administration has developed a fiscal year 2011 budget that moves us in the right direction. I view the NNSA's fiscal year 2011 budget request as a positive first step and I urge its approval by Congress." Further, I believe that we need to be focused not just on a single year's budget, but rather on a long-term sustainable program that is both balanced and flexible as new costing information comes available on the nuclear facilities and on the planned LEPs.

JASON LIFE EXTENSION PROGRAM REPORT

67. Senator INHOFE. Dr. Schwitters, the unclassified JASON LEP Executive Summary, released September 9, 2009, has been widely misconstrued in the press. The New York Times posted a headline of "Panel sees no need for A-bomb upgrade". While on the other hand, the NNSA, in its press release on the report, cautioned, "While we endorse the recommendations and consider them well-aligned with NNSA's long-term stockpile management strategy, certain findings in the unclassified Executive Summary convey a different perspective on key findings when viewed without the context of the full classified report." The three national lab directors, in letters to Congress received in March of this year, stated "In the absence of the more complete discussion provided in the classified report, the first two findings understate . . . the challenges and risks . . . [and] also understate the future risks that we must anticipate" in sustaining the U.S. nuclear stockpile. Did JASON identify aging and risks in the stockpile that will require stockpile upgrades?

Dr. SCHWITTERS. In the written remarks prepared for this hearing, I describe the 2009 JASON report and its unclassified executive summary released publicly by NNSA. The classified report details our assessments of the certification challenges associated with LEP strategies for all the systems in the enduring stockpile; the executive summary provides verbatim the complete list of findings and recommendations contained in the classified report. The full report includes detailed discussions of aging effects. I hope I have made clear in my testimony that JASON did not propose a refurbishment-only strategy for future LEPs.

We were concerned that some of the commentary on our work implied an inconsistency between the classified report and its unclassified executive summary. We discussed these concerns with Administrator D'Agostino in April 2010. Subsequently, NNSA forwarded to its staff and laboratory leadership a statement that concludes: "NNSA has reviewed the JASON LEP report including the question of consistency between the unclassified executive summary of the report and the full classified version of the report JASON submitted to us. The two documents are consistent. Both versions support NNSA's commitment to maintaining the safety, security, and reliability of the Nation's nuclear weapons stockpile under the terms of the NPR."

My prepared remarks address the comments concerning the 2009 report made by the laboratory directors in letters sent to Ranking Member Turner of the House Subcommittee on Strategic Forces earlier this year.

68. Senator INHOFE. Dr. Schwitters, could issues arise in the future due to aging or changes introduced in LEPs?

Dr. SCHWITTERS. Yes, issues could arise in the future due to aging or changes introduced by LEPs. A healthy stockpile surveillance program provides a crucial window through which such issues can be observed as they develop. JASON found that the current surveillance program is inadequate and recommended a revised program to meet present and future needs. The other principal tool for anticipating and preparing for technical surprise in the stockpile is better understanding of the science underlying nuclear weapons performance, including aging effects in materials and the realms of validity of performance models and simulations. Both surveillance and continuous improvement in understanding of weapons science call for attention in the budget process and setting of priorities by Congress, NNSA, and the laboratories.

69. Senator INHOFE. Dr. Anastasio, Dr. Miller, and Dr. Hommert, can the lab directors explain further how the report understates challenges and risks in certifying the stockpile?

Dr. ANASTASIO. As I have stated in a letter to Representative Michael Turner on January 25, 2010:

> "The JASON report states that the lifetimes of today's nuclear weapons could be extended for decades, with no anticipated loss of confidence, by

using approaches similar to those employed in LEPs to date. I do not agree with this assertion."

There are some materials and components in the current stockpile that cannot be replicated in a refurbishment, and there may not be suitable replacements that would allow sustained confidence in current systems. Moreover, there are several technical issues that cannot be addressed using a refurbishment-only approach, including the need to improve the safety and security of warheads. More specifically, as I stated in the letter to Representative Turner:

"There are several technical issues that cannot be addressed using a refurbishment-only approach:

- It is not possible to replace HE primaries with IHE primaries or implement certain intrinsic surety features in today's stockpile using refurbishment because of current system constraints.
- Weapon aging, which can manifest itself in the form of corrosion, microscopic and macroscopic defects, et cetera, can lead to off-normal or feature-driven disruption to nuclear performance and diminish the available performance margin in low-margin weapons more rapidly than the weapons could be cycled through a refurbishment. This risk can be managed by preemptively increasing margins—but by amounts larger than those available through refurbishment.
- The JASON correctly recognizes that substantial reductions in yield for various stockpile warheads, which may be called for in the forthcoming NPR, also could not be accomplished using refurbishment.

Further, the JASON report states that some reuse and replacement options require a more advanced understanding of weapons physics. While this is an accurate statement, it also applies to refurbishment. It does not mean that reuse and replacement options are precluded technically. In fact, the classified JASON report supports reuse and replacement options."

Dr. MILLER. In the absence of the more complete discussion provided in the classified report, the first two findings of the unclassified JASON report understate the challenges and risks associated with ensuring a safe and reliable nuclear force. These findings also understate the future risks in sustaining the high-yield, low-margin designs of the Cold War stockpile, in particular, the risks associated with manufacturing difficulties, continued erosion of intellectual capital, the impact of funding limitations, and the capability to address potential future issues are all understated. While the executive summary understates the risks and challenges, the full, classified report does address some of the risks and therefore, in my view, provides a more accurate description of the challenges facing the SSP.

One of the sources of difficulty, in some cases, is the technical challenge of recreating Cold War materials and/or production processes (Fogbank is a recent noteworthy example). As discussed in the full classified report, continuing to use approaches similar to those employed in the LEPs to date would result in the need to reestablish several other highly complex manufacturing processes that have been out of use for decades. While it is theoretically possible to reestablish these arcane processes, the time and cost to do so are daunting. This challenge is compounded by the stress currently on the system resulting from funding reductions over the past 5 years that have impacted our science, engineering, and technology development efforts and resulted in workforce reductions.

Another complication to consider is the fact that the accumulation over time of small changes that are inherent in component aging, material compatibility issues, and refurbishment of aging components, take our warheads away from the designs whose safety and reliability were certified in the era when nuclear tests were conducted. Recently identified warhead problems (that were not identified when certain warheads were first introduced into the stockpile) further complicate certification. These factors introduce increased uncertainty in the performance of existing warheads. Increased investment in the science, engineering, and technical capabilities that underpin our ability to maintain the U.S. nuclear deterrent is required.

Dr. HOMMERT. SNL has expressed concern that important differences between nuclear and non-nuclear components were not fully considered in the report. Therefore, we believe that certain findings and recommendations are not necessarily extensible to the non-nuclear components or the warhead system. In particular, the first finding of the JASON'S report (JASON finds no evidence that accumulation of changes incurred from aging and LEPs have increased risk to certification of today's deployed nuclear warheads) is not applicable to the non-nuclear components or the warhead system, and understates the challenges we face today. Specifically, the accumulation of changes in stockpile systems due to aging and changes to original design can be a significant factor for non-nuclear components and does indeed affect

our confidence in these components and ultimately overall warhead performance. Concerns about aging and technology obsolescence for non-nuclear components are most effectively addressed with modern technologies. These modern technologies would also enable SNL to positively impact warhead safety and security. SNL can confidently execute initial qualification and lifetime assessment of modem non-nuclear components using our suite of engineering tools.

[Whereupon, at 11:26 a.m., the committee adjourned.]

IMPLEMENTATION OF THE NEW STRATEGIC ARMS REDUCTION TREATY

TUESDAY, JULY 20, 2010

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met, pursuant to notice, at 9:38 a.m. in room SD–106, Dirksen Senate Office Building, Senator Carl Levin (chairman) presiding.

Committee members present: Senators Levin, Lieberman, Reed, Bill Nelson, E. Benjamin Nelson, Udall, Hagan, McCain, LeMieux, Brown, and Collins.

Committee staff members present: Richard D. DeBobes, staff director; and Leah C. Brewer, nominations and hearings clerk.

Majority staff members present: Madelyn R. Creedon, counsel; Richard W. Fieldhouse, professional staff member; and Thomas K. McConnell, professional staff member.

Minority staff members present: Joseph W. Bowab, Republican staff director; Christian D. Brose, professional staff member; and Daniel A. Lerner, professional staff member.

Staff assistants present: Christine G. Lang, Hannah I. Lloyd, Brian F. Sebold, and Breon N. Wells.

Committee members' assistants present: Christopher Griffin, assistant to Senator Lieberman; Carolyn Chuhta, assistant to Senator Reed; Nick Ikeda, assistant to Senator Akaka; Ann Premer, assistant to Senator Ben Nelson; Rob Soofer, assistant to Senator Inhofe; Brian Walsh, assistant to Senator LeMieux; Scott Schrage, assistant to Senator Brown; and Ryan Kaldahl and Brandon Milhorn, assistants to Senator Collins.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Chairman LEVIN. Good morning, everybody. I'd like to welcome each of our witnesses this morning. We have with us three very distinguished, dedicated public servants: Dr. James Miller, the Principal Deputy Under Secretary of Defense for Policy; Tom D'Agostino, the Administrator of the National Nuclear Security Administration (NNSA); and General Kevin Chilton, Commander of the U.S. Strategic Command (STRATCOM). It's good to see you all again.

With the New Strategic Arms Reduction Treaty (START) which was signed this last April, a nuclear verifiable arms control treaty would be put back in place. Today we're going to focus on how the New START treaty, if ratified, will be implemented by the Department of Defense (DOD) and the NNSA.

There are many questions about how this treaty will be implemented. These include the following: Does the reduced force structure required by the new treaty meet the military requirements to maintain nuclear deterrence for the United States and for its allies? How will the force structure be shaped? In other words, how will the requirements in the new treaty for reductions in delivery systems and launchers be implemented? Will implementation of the New START treaty constrain DOD's programs and plans for missile defense? Can the NNSA carry out its responsibility to maintain a smaller stockpile of nuclear weapons under the New START treaty so that these weapons can remain safe, secure, and reliable? Will the ability of the directors of the national security labs to propose any and all options they believe are warranted to maintain the safety, security, and reliability of the nuclear weapons be preserved?

Last week, we heard from the lab directors that they feel that they are not limited in their ability to explore all options. On the contrary, they said that they have the flexibility and indeed it is their responsibility to propose any option that they recommend.

The Nuclear Posture Review (NPR) says that the full range of life extension options should be studied, but that in deciding which life extension options should move to the engineering phase, the Nuclear Weapons Council (NWC) should give preference for refurbishment or reuse. What does that preference mean from an implementation perspective and will this have any impact on the long-term ability to maintain nuclear weapons safe, secure, and reliably, the reliability?

We heard from the Intelligence Community (IC) last week that the New START and the old START have different approaches to verification. Today we will hear from our witnesses as to whether this treaty can be verified through the monitoring activities of the IC utilizing the verification provisions of the new treaty as well as national technical means.

Senator McCain.

STATEMENT OF SENATOR JOHN MCCAIN

Senator MCCAIN. Thank you, Mr. Chairman. I thank our distinguished witnesses for their service and joining us today.

As I've stated before, I've been a supporter of previous bipartisan efforts to reduce our nuclear weapons in step with the Russian Government. Many of us have concerns about the New START treaty's methods of verification, its constraints on ballistic missile defense (BMD), and the accompanying plan for modernization of both the nuclear stockpile and our nuclear delivery vehicles. It's my hope that over the course of our hearings Congress will receive both the assurances and the funding commitments necessary to overcome these concerns.

Given this treaty's significant implications for our national security and the multiple committees that have direct oversight responsibilities, the Senate needs to move thoroughly to consider this treaty and all of its critical components. Obviously, we don't want to rush our deliberations to meet an arbitrary deadline.

We have yet to receive critical documents necessary for this committee and the full Senate to make an informed judgment of this

treaty. Specifically, the administration has yet to provide the treaty's negotiating record, including the negotiating history dealing with the ambiguity of the New START treaty's preamble with respect to strategic defensive weapons and the contradictory statements issued by the United States and Russia on the meaning and legal force of that language.

This request for the treaty's negotiating history is not unprecedented. The Senate has previously sought and received access to the negotiating history for major arms control treaties between the United States and the former Soviet Union, such as the 1972 Anti-Ballistic Missile Treaty and the 1987 Intermediate-Range Nuclear Forces Treaty. To enable the Senate to fully fulfill its constitutional duty to provide advice and consent on New START, the Obama administration should give the Senate access to the negotiating records.

Last week the House appropriators chose to fund coveted water project earmarks, but not to fully fund the President's fiscal year 2011 request for modernization of the nuclear weapons complex. There are already concerns about the adequacy of the President's plan for meeting our full recapitalization and modernization needs, and this lack of commitment by House Democrats to at least meet the President's request is troubling.

I look forward to hearing from all of our witnesses if they're concerned by this cut and if they intend to recommend that the President veto any funding bills that do not meet his funding request for modernization of the weapons complex.

During this committee's hearings last week with the lab directors, it was clear that some of these professionals have significant concerns regarding the administration's decision to discourage the replacement of warheads as an option for extending the life of our nuclear stockpile. In fact, General Chilton, I'm sure you weren't happy about the fact that I quoted you and quote you again today when you said: "We should not constrain our engineers and scientists in developing options on what it will take to achieve the objectives of the stockpile management program and let them bring forward their best recommendations for both the President and for Congress to assess as to what is the best way forward."

We've been told by the Secretary of Defense and the Secretary of Energy that supplemental guidance for the NPR has made it clear that all life extension efforts should be pursued. However, it's not clear that such guidance has been issued. It is essential for the President to state that his administration should encourage and pursue all modernization options achievable without testing or the establishment of a new military characteristic.

These issues and others need to be resolved and clarified before the Senate can in good faith and consistent with its responsibilities make a considered judgment on this important matter. Today's hearing is an additional opportunity to discuss the implications of this new treaty and its supporting documents, including the NPR, the 1251 report, the National Intelligence Estimate (NIE), and the Stockpile Stewardship and Management Plan (SSMP).

The treaty will also have implications on our nuclear force structure. I look forward to hearing additional details on the composition of our strategic forces from our witnesses this morning.

I thank all of you again for your service and for appearing here today.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator McCain.

Dr. Miller.

STATEMENT OF HON. JAMES N. MILLER, PH.D., PRINCIPAL DEPUTY UNDER SECRETARY OF DEFENSE FOR POLICY

Dr. MILLER. Mr. Chairman, Senator McCain, distinguished members of the committee, thank you for the opportunity to testify today. It is a great pleasure to join my colleagues, Tom D'Agostino and General Chilton, in discussing the New START treaty. I'd like to summarize my prepared statement and ask that it be entered into the record in its entirety.

Chairman LEVIN. It will be.

Dr. MILLER. I'd like to make just six key points in summary. First, the New START treaty will strengthen strategic stability with Russia and reduce nuclear force levels. With 1,550 accountable nuclear warheads, the United States will be able to sustain effective nuclear deterrence with an assured devastating second strike capability. The administration plans a robust triad of 700 deployed intercontinental ballistic missiles (ICBM), submarine launched ballistic missiles (SLBM), and nuclear-capable heavy bombers. We plan to retain all 14 *Ohio*-class SSBNs and deploy no more than 240 Trident II SLBMs at any one time. We also plan to retain up to 420 of the current 450 Minuteman III ICBMs, each with a single warhead, and we plan to retain up to 60 nuclear-capable B–2A and B–52H heavy bombers, while converting remaining nuclear-capable B–1B bombers and some B–52H bombers as well to a conventional-only capability.

As noted in the section 1251 report to Congress, DOD plans to spend well over $100 billion over the next decade to sustain existing strategic delivery system capabilities and modernize strategic systems for the future.

Second, on verification, the New START treaty's verification provisions will increase our confidence in the numbers and status of Russian nuclear forces. In fact, as Secretary Gates has noted, one of the great contributions of this treaty is its strong verification regime. The 18 annual onsite inspections are a linchpin of the treaty's verification framework. They will work synergistically with other elements of the treaty, including the following: extensive data exchanges on the characteristics and locations of ICBMs, SLBMs, and nuclear-capable heavy bombers; unique identifiers associated with each missile and heavy bomber; a requirement to report any changes in the status of strategic systems through timely notifications; and provisions for non-interference with national technical means of verification.

Without the treaty and its verification measures, the United States would have much less insight into Russian strategic forces, thereby requiring our military to plan based on worst-case assumptions. This would be an expensive and potentially destabilizing approach that this Nation should not accept.

Third point: U.S. force structure plans under the treaty will further strengthen deterrence of Russian cheating or breakout. Be-

cause the United States will retain a robust triad of strategic forces, Russian cheating or breakout under the treaty would have little effect on the assured second-strike capabilities of U.S. nuclear forces. In particular, the survivability and responsiveness of strategic submarines at sea and alert heavy bombers would be unaffected by even large-scale cheating.

In addition, the United States would be able to respond to Russian cheating or breakout with the ability to upload large numbers of additional nuclear warheads on both bombers and strategic missiles. The United States will therefore be well-postured under New START to deter any Russian attempt to gain advantage by cheating or breakout.

This, of course, does not mean that Russian cheating or breakout is likely or that it would be acceptable. If there were any signs of Russian cheating or preparations to break out from the treaty, the United States would first raise this matter in the Bilateral Consultative Commission established under the treaty and, if not resolved there, at higher levels, and then would have other courses of action following that, if necessary.

Fourth, the treaty does not constrain our ability to develop and deploy non-nuclear prompt global strike capabilities. DOD is currently conducting an indepth analysis of non-nuclear prompt global strike. However, we have concluded at this point that any deployment of conventionally armed ICBMs or SLBMs with a traditional ballistic trajectory, which would count under the New START treaty's limits, would be limited to a niche capability which could easily be accounted for under the treaty, while retaining our nuclear triad.

DOD is also exploring the potential of conventionally-armed long-range missile systems that fly a non-ballistic trajectory, for example so-called boost-glide systems. Such systems would have the advantage that they could steer around other countries to avoid overflight issues and they would have flight trajectories distinguishable from an ICBM or SLBM. As we made clear in the New START treaty negotiations, we would not consider such non-nuclear systems, which do not otherwise meet the definitions of the New START treaty as ICBMs or SLBMs, to be new kinds of arms for purposes of the treaty.

The fifth point: The treaty does not in any way constrain the ability of the United States to sustain our nuclear weapons stockpile (NWS) and to rebuild the nuclear security enterprise that supports it. This effort is a priority of the Secretary of Defense. Both General Chilton and Administrator D'Agostino will speak to this critical issue. I strongly endorse our efforts in this area.

Sixth, the treaty does not constrain the ability of the United States to develop and deploy effective BMDs, including the ability to improve those defenses both qualitatively and quantitatively, nor does it add any cost or inconvenience to this effort. The treaty's preamble states that current strategic defensive forces do not threaten to undermine the effectiveness of the parties' strategic offensive arms. Given that the United States currently has only 30 ground-based interceptors (GBI) and Russia will likely deploy well over 1,000 ICBM and SLBM warheads under the treaty, U.S. mis-

sile defenses could increase very significantly and the same will remain true.

It is also important to note that the treaty's preamble is not legally binding and therefore does not require or prohibit either side from doing anything.

Article 5 of the treaty prohibits any future conversion of ICBM silos or SLBM launchers to house or launch BMD interceptors, or vice versa. Such a conversion would neither be cost effective nor necessary. For example, converting 10 ICBM silos to house GBIs would cost about $550 million, compared to $360 million for building 10 new tailor-made GBI silos. The placement of missile defense interceptors in converted SLBM launchers would be operationally impractical and very expensive. Therefore, the Article 5 limitation on launcher conversion does not constrain U.S. plans, programs, or options.

Russia made a unilateral statement about missile defenses in connection with the treaty. This statement is not part of the treaty and is not legally binding. As I know the Senators also know, the United States made a unilateral statement in response that we will continue to improve our missile defense capabilities to provide for effective defense of our Homeland against limited missile attacks. We will also do so for our deployed forces and our allies and partners against growing regional threats.

As the 2010 Ballistic Missile Defense Review (BMDR), our budgetary plans, the U.S. unilateral statement, and extensive testimony by administration officials all make clear, the United States will continue to expand and improve our missile defenses.

In summary, the New START treaty promotes stability and transparency in our strategic relationship with Russia. It is effectively verifiable. It allows us to maintain and to modernize a robust triad of strategic nuclear delivery systems and, if desired, to deploy non-nuclear prompt global strike capabilities. It does not affect our ability or intent to revitalize our nuclear security enterprise, nor does it affect our ability or intent to improve our ballistic missile defense capabilities both qualitatively and quantitatively. In short, the New START treaty will make the United States and our allies and partners more secure.

Thank you, I look forward to answering your questions.

[The prepared statement of Dr. Miller follows:]

PREPARED STATEMENT BY DR. JAMES N. MILLER

Mr. Chairman, Senator McCain, distinguished members of the committee, thank you for the opportunity to testify today. It is a pleasure to join General Kevin Chilton, Commander of U.S. Strategic Command, and Tom D'Agostino, Administrator of the National Nuclear Security Administration, in discussing the New Strategic Arms Reduction Treaty (START).

The New START treaty will strengthen strategic stability with Russia at reduced nuclear force levels, improve transparency with key data exchange and verification provisions, enable the United States to retain and modernize a robust Triad of strategic delivery systems, allow the freedom to alter our mix of strategic forces, and protect our ability to develop and deploy non-nuclear prompt global strike and missile defenses. In short, the New START treaty will make the United States, and our allies and partners, more secure.

NUCLEAR POSTURE REVIEW AND NEW START

An early priority of the year-long 2010 Nuclear Posture Review (NPR) was to develop U.S. positions for the New START negotiations, including how many strategic

delivery vehicles and deployed warheads were needed to field an effective, credible, and flexible nuclear deterrent for the duration of the treaty. The Secretary of Defense, the Joint Chiefs of Staff, and General Chilton were all deeply involved in the NPR, and in decisions on New START treaty limits.

The NPR's early, extensive, and continued attention to New START resulted in guidance to negotiators that ensured the key limits agreed to in the treaty would allow U.S. strategic nuclear forces to meet all key strategic objectives for the United States. In particular:

- The treaty's limit of 1,550 accountable warheads will allow the United States to sustain effective nuclear deterrence, including sufficient survivable nuclear forces for an assured devastating second-strike capability.
- The treaty's limits of 700 deployed intercontinental ballistic missiles (ICBMs), submarine launched ballistic missiles (SLBMs), and nuclear-capable heavy bombers will support strategic stability by allowing the United States to retain a robust Triad of strategic delivery systems—while downloading all remaining Minuteman III ICBMs to a single warhead.
- The treaty's limit of 800 deployed and nondeployed launchers of ICBMs, launchers of SLBMs, and nuclear-capable heavy bombers will allow the retention of up to 100 ICBM and SLBM launchers, and nuclear-capable bombers, in a nondeployed status. When combined with the New START counting rule that a launcher is deployed only when mated with a missile, and the treaty's provisions on conversion of heavy bombers to a conventional-only configuration, this will allow the United States to minimize irreversible changes to nuclear force structure.
- By providing the freedom to mix U.S. strategic nuclear forces as we see fit, the treaty will allow the United States to rebalance its strategic forces as necessary to adapt to any future technical and geopolitical challenges that could affect a given leg of the Triad.
- The treaty allows us to maintain our stockpile of nondeployed warheads and an "upload" capacity for strategic delivery systems, which provide a hedge against adverse technical developments or a serious deterioration in the international security environment. More broadly, the treaty does not in any way constrain the ability of the United States to sustain our nuclear weapons stockpile, and rebuild the nuclear security enterprise that supports it.
- The treaty's data exchange and verification provisions will increase transparency and confidence in the numbers and status of Russia's nuclear forces, without imposing significant burdens on our ability to operate U.S. nuclear forces.
- As I will discuss in more detail, the treaty does not constrain our ability to develop and deploy non-nuclear prompt global strike capabilities.
- As I will also discuss in more detail, the treaty does not constrain the ability of the United States to develop and deploy effective ballistic missile defenses, including the ability to improve these defenses both qualitatively and quantitatively.

U.S. NUCLEAR FORCE STRUCTURE UNDER NEW START

The Department of Defense has developed a baseline nuclear force structure for New START that fully supports U.S. security requirements without requiring changes to current or planned basing arrangements. Specifically, under baseline plans, the administration plans to field a diversified force that meets New START limits by:

- Retaining 14 *Ohio*-class SSBNs and deploying no more than 240 Trident II D5 SLBMs at any time.
- Retaining up to 420 deployed Minuteman III ICBMs, each with a single warhead.
- Retaining up to 60 nuclear-capable B–2A and B–52H heavy bombers, while converting remaining nuclear-capable B–1B and some B–52H heavy bombers to conventional-only capability.

This baseline force structure provides a basis for future planning. The treaty affords the flexibility to make appropriate adjustments as necessary.

The Department of Defense plans to sustain and modernize U.S. strategic delivery capabilities, as outlined in detail in the classified report submitted to Congress in response to section 1251 of the National Defense Authorization Act of 2010. To this end, over the next decade, the United States will invest well over $100 billion to sustain existing strategic delivery systems capabilities and modernize strategic systems.

The fiscal year 2011 budget request and future year program plans reflect a decision to proceed with the SSBN(X) to replace the current *Ohio*-class strategic submarines starting in the late 2020s, to sustain Minuteman III ICBMs until 2030 as directed by Congress, and to sustain dual-capable B–52H and B–2 bombers until at least 2035 and 2050 respectively. The DOD is currently conducting an Analysis of Alternatives (AoA) for the next Air-Launched Cruise Missile, and will initiate study of options for a follow-on ICBM in 2011–2012.

Finally, DOD is currently studying the appropriate long-term mix of long-range strike capabilities, including heavy bombers as well as non-nuclear prompt global strike systems, in follow-on analysis to the 2010 Quadrennial Defense Review and the NPR; the results of this ongoing work will be reflected in the Department's fiscal year 2012 budget submission.

NON-NUCLEAR PROMPT GLOBAL STRIKE

The deployment of a non-nuclear prompt global strike system would provide the United States with a capability that we currently lack: the ability to precisely strike a target anywhere on the earth in less than 1 hour using a non-nuclear warhead. At the same time, depending on technical and operational details, such systems could raise a number of challenges, including potential over-flight of other countries, and the ability to distinguish the launch of non-nuclear as opposed to nuclear-armed systems.

While our analysis of non-nuclear prompt global strike is still underway, DOD has concluded that any deployment of conventionally-armed ICBMs or SLBMs with a traditional ballistic trajectory, which would count under the New START treaty's limits, should be limited to a niche capability. For example, if the Conventional Trident Modification program were deployed, it would involve 2 missiles for each of 12 to 14 submarines, and 24 deployed strategic delivery vehicles total and fewer than a hundred accountable strategic warheads. This number of SDVs and strategic warheads could easily be accounted for under the limit of 700 deployed SDVs and 1550 strategic warheads under the treaty, while still retaining a robust nuclear Triad.

DOD is also exploring the potential of conventionally-armed, long-range missile systems that fly a non-ballistic trajectory (e.g., boost-glide systems). Such systems would have the advantage that they could "steer around" other countries to avoid over-flight and have flight trajectories distinguishable from an ICBM or SLBM. As we made clear during the New START treaty negotiations, we would not consider such non-nuclear systems, which do not otherwise meet the definitions of the New START treaty, to be "new kinds of strategic offense arms" for the purposes of the treaty.

SUSTAINING THE NUCLEAR WEAPONS STOCKPILE AND INFRASTRUCTURE

In addition to sustaining U.S. delivery systems, maintaining an adequate stockpile of safe, secure, and reliable nuclear warheads is a core U.S. objective identified in the 2010 NPR, and this requires a reinvigoration of our nuclear security enterprise. To this end, the Department of Defense transferred $4.6 billion of its top-line to the Department of Energy's National Nuclear Security Administration (NNSA) through fiscal year 2015. This transfer will assist in funding critical nuclear weapons life extension programs and efforts to modernize the nuclear weapons infrastructure. The initial applications of this funding, along with an additional $1.1 billion being transferred for naval nuclear reactors, are reflected in the Defense and Energy Departments' fiscal year 2011 budget requests. The NNSA budget request for weapons activities for fiscal year 2011 represents a 10 percent increase over fiscal year 2010, and increased funding levels are planned for the future, as reflected in the administration's recent section 1251 report. The U.S. nuclear force posture under the New START treaty will be strong, properly resourced, and supported by a revitalized nuclear infrastructure.

VERIFICATION

As Secretary Gates has testified, one of the greatest contributions of this treaty is its strong verification regime. The treaty's verification and data exchange provisions will increase transparency and confidence in the numbers and status of Russian nuclear forces, without imposing significant burdens on our ability to operate U.S. nuclear forces.

Onsite inspections are a linchpin of the treaty's verification framework. The treaty allows each Party to conduct up to 18 short-notice onsite inspections each year, with up to 10 Type One inspections conducted at operating bases for ICBMs, strategic nuclear-powered ballistic missile submarines, and nuclear-capable heavy bombers, and up to 8 Type Two inspections conducted at places such as storage sites, test

ranges, and conversion or elimination facilities where nondeployed systems are located.

Onsite inspections work synergistically with other elements of the treaty, including:

- extensive periodic data exchanges on the characteristics and locations of ICBMs, SLBMs, and nuclear-capable heavy bombers;
- unique identifiers associated with each ICBM, SLBM, and heavy bomber; and,
- a requirement to report any changes in the status of strategic systems through timely notifications.

By enabling the United States to directly observe Russia's strategic nuclear forces and related facilities, onsite inspections will help the United States verify that Russia is complying with the provisions of the New START treaty.

Inspections will also provide a deterrent to cheating. Because the treaty provides for up to 18 inspections per year at sites selected by the inspecting party, each side knows that the other will have a significant capability to uncover discrepancies between what is reported and what is actually happening. If the United States has concerns or encounters ambiguities during onsite inspections, we will immediately raise these matters with the Russians in the Bilateral Consultative Commission and seek prompt resolution. If necessary, we will pursue them at higher political levels.

Without the treaty's verification measures, the United States would have much less insight into Russian strategic forces, thereby requiring our military to plan based on worst-case assumptions. This would be an expensive and potentially destabilizing approach that this nation should not accept.

The force structure plans of the United States, as outlined in the Nuclear Posture Review and the section 1251 report to Congress, reinforce the New START treaty's verification regime by minimizing the value of any potential Russian cheating or breakout. Moreover, there is no breakout scenario in which Russia would be able to employ even a substantially expanded number of deployed strategic nuclear warheads to undermine the second strike retaliatory deterrent capability of the United States. Because the United States will retain a diverse Triad of strategic forces, any Russian cheating under the treaty would have little effect on the assured second-strike capabilities of U.S. strategic forces. In particular, the survivability and response capabilities of strategic submarines at sea and alert heavy bombers would be unaffected by even large-scale cheating. Nor could Russia achieve a sustained numerical advantage in deployed strategic warheads through such a breakout because the United States will retain the ability to "upload" large numbers of additional nuclear warheads on both bombers and strategic missiles deployed under New START. Therefore any breakout scenario would have, at most, limited military significance. Notwithstanding this conclusion, should there be any signs of Russian cheating or preparations to breakout from the treaty, the United States would certainly raise this matter in the Bilateral Consultative Commission, and if not resolved, at higher levels.

The New START treaty's verification provisions and a diverse and survivable U.S. force posture combine to provide strong deterrence of Russian cheating or breakout under the New START treaty. As the State Department's recent report on the verifiability of the New START treaty states, these factors contribute to a New START treaty that is effectively verifiable.

BALLISTIC MISSILE DEFENSES

As made clear in the report of the 2010 Ballistic Missile Defense Review, the ballistic missile threat to U.S. deployed military forces and to our allies and partners is growing rapidly, with potential implications for our ability to project power abroad, to prevent and deter future conflicts, and to prevail should deterrence fail. One of the most significant threats to the U.S. homeland is the continued efforts of Iran and North Korea to develop nuclear weapons and long-range ballistic missiles to deliver them. The protection of the United States, our deployed forces, and our allies and partners from the threat of ballistic missile attack is a critical national priority.

A core U.S. aim during the New START negotiations was to protect the U.S. ability to deploy the most effective missile defenses possible. U.S. negotiators achieved this objective. The New START treaty does not constrain the United States from deploying the most effective missile defenses possible, nor does it add any additional cost or inconvenience. Rather, the treaty enables this President and his successors to develop the missile defenses needed to defend the Nation, our deployed forces abroad, and our allies and partners from the threat of ballistic missile attack.

The New START treaty addresses missile defenses in two places: the Preamble and Article V. First, the Preamble of the treaty states that there is an interrelationship between strategic offensive and strategic defensive arms, and that current strategic defensive forces do not threaten to undermine the effectiveness of the Parties' strategic offensive arms. Given that the United States has only 30 Ground Based Interceptors and Russia will likely field well over 1,000 ICBM and SLBM warheads under the treaty,

U.S. missile defenses can increase very significantly and the same would remain true. It is also important to note that the treaty's preambular statement is not legally binding, and therefore does not require or prohibit either side from doing anything.

Second, Article V of the treaty prohibits any future conversion of ICBM silos or SLBM launchers to house and launch BMD interceptors—or vice versa. Such conversion would be neither cost-effective nor necessary. For example, converting ten ICBM silos to house GBIs would cost about $550 million, compared to $360 million for building 10 new tailor-made GBI silos. The placement of midcourse missile defense interceptors in converted SLBM launchers would be operationally impractical and very expensive. Consequently, the Article V limitation on launcher conversion does not constrain U.S. plans or programs.

In addition, Russia made a unilateral statement about missile defense in connection with the treaty. This statement is not part of the treaty and is not legally binding.

The United States also made a unilateral statement associated with the New START treaty, which makes clear that our missile defense systems are not intended to affect the strategic balance with Russia, and that we will continue to improve our missile defense capabilities to provide for effective defense of our homeland against limited missile attacks and of our deployed forces, allies, and partners against growing regional threats. We have also explained that the missile defense capabilities associated with the European Phased Adaptive Approach will not affect the U.S.-Russian strategic balance, and that we fully intend to proceed with that approach in the context of the extensive missile defense program laid out in the 2010 Ballistic Missile Defense Review. We continue to seek Russian cooperation on missile defenses to improve both countries' ability to cope with the growing threat.

As the 2010 Ballistic Missile Defense Review, our budgetary plans, the U.S. unilateral statement, and extensive testimony by administration officials all make clear, the United States will continue to expand and improve missile defenses as necessary.

ACCOUNTABILITY OF RAIL MOBILE ICBMS AND THEIR LAUNCHERS

Before concluding, I would like to address an additional issue that has arisen recently regarding the treaty. Some have asked whether a Russian rail-mobile ICBM system, should Russia again deploy a system such as its former rail-based SS–24, would be accountable under New START. The answer is unequivocally yes. Such systems were not specifically addressed in the treaty because, unlike the situation when the previous START was being negotiated, neither party currently deploys rail-mobile ICBMs. Nevertheless, the treaty's terms and definitions cover all ICBMs and ICBM launchers, including possible future rail-mobile systems. Therefore, in the event that Russia deploys rail-mobile ICBMs in the future, the launchers and the ICBMs they carry would be accountable under the New START treaty. Specific details about the application of the above mentioned verification provisions would be worked out in the treaty's Bilateral Consultative Commission.

CONCLUSION

The New START treaty promotes stability and transparency in our strategic relationship with the Russian Federation, and is effectively verifiable. It allows us to maintain and modernize a robust Triad of strategic delivery systems, and if desired, deploy non-nuclear prompt global strike capabilities. The New START treaty does not affect our ability to revitalize our nuclear security enterprise. Nor does it affect our ability or intent to improve our ballistic missile defense capabilities both qualitatively and quantitatively. For these reasons, the Department of Defense fully supports this treaty.

Thank you. I look forward to answering your questions.

Chairman LEVIN. Thank you, Dr. Miller.

Mr. D'Agostino.

STATEMENT OF HON. THOMAS P. D'AGOSTINO, ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION, DEPARTMENT OF ENERGY

Mr. D'AGOSTINO. Chairman Levin, Ranking Member McCain, and members of the committee, thank you for the opportunity to testify on the New START treaty between the United States of America and the Russian Federation. First of all, I'd like to make clear that the New START treaty will not affect NNSA's ability to maintain the safety, security, and effectiveness of the Nation's NWS. No NNSA sites will be subject to inspections and none of our operations will be subject to limitation. Our plans for investment in and modernization of the nuclear strategic enterprise are essential irrespective of whether or not the New START treaty is ratified. Treaty implementation will not affect our plans.

Ensuring the safety, security, and effectiveness of the NWS is one of NNSA's primary missions. Maintaining the stockpile without nuclear testing has been a national policy for nearly 20 years and we will continue to support that policy in the future.

In addition to our maintenance, surveillance, and warhead certification activities, important life extension milestones include: completing the ongoing life extension for the W76 warhead, about the 2017 time frame; completing the full-scope life extension study for the B61 bomb, with production beginning about the 2017 time frame as the W76 is coming down; and completing a study of life extension options for maintaining the W78 ICBM warhead.

With respect to life extension options, the NPR is clear that the full range of options will be considered for each warhead life extension, to include replacement of nuclear components. The report on New START treaty framework and nuclear force structure plans, or what's known as the 1251 report, explains that, while the NPR expresses a preference for refurbishment and reuse, the laboratory directors will be expected to provide findings associated with the full range of life extension approaches and they will make recommendations based solely on their best technical assessment of the ability of each life extension approach to meet critical stockpile management goals. These are goals in weapons system safety, weapons system security, and of course the effectiveness and reliability.

The NPR also reinforced the need to maintain the most survivable leg of the triad, a sea-based strategic deterrent. Naval Reactors began reactor and propulsion plant design this year for an *Ohio*-class replacement submarine. Reactor plant components will be procured in 2017 and will support the Navy's need for a reactor core that will last for more than a 40-year life of submarine. Full funding for this program will be required.

The NPR also concluded that we needed to recapitalize the aging infrastructure and renew our human capital base. The SSMP is a comprehensive 20-year plan to achieve this goal and to modernize NNSA's nuclear security enterprise. Implementation of this SSMP will allow us to strengthen our science, technology, and engineering base, modernize the infrastructure, and recruit, develop, and retain the next generation of nuclear security professionals responsible for the stockpile stewardship program as well as other nuclear security missions that the Nation needs.

U.S. nuclear warhead reliability has always been held to the highest standards. These standards for warhead reliability will remain exacting and extremely high regardless of stockpile size. But as the size of the stockpile decreases, our deterrent will rely even more on the capabilities and the strong capabilities-based infrastructure that can respond rapidly to technical and geopolitical changes. This is not just infrastructure in the form of buildings, but our people, the infrastructure in the form of people and capability to be able to respond in the future.

We've requested a substantial increase in funding in the 2011 to 2015 time period, and the President's budget request for NNSA for the fiscal year during this period for what we call the future year nuclear security program, is exactly right. It reflects both what is necessary and executable. The request includes an increase of $624 million next year and scales up by an additional billion dollars by fiscal year 2015. The plan calls for sustained investments at these higher levels such that over the next decade the United States will have invested nearly $80 billion in the SSMP and in modernizing the infrastructure.

Sustained national-level commitment and support over the next decade is essential for the entire nuclear security enterprise. The United States relies on NNSA and the national laboratories for the development of technologies, for treaty verification, and for nonproliferation initiatives. Under New START, U.S. inspectors will use equipment developed by our national laboratories that was used for the Intermediate-Range Nuclear Forces and the START I treaties. Should new radiation detection equipment be required, specialists from the nuclear security enterprise will also play an essential role in developing and evaluating this equipment.

The New START treaty, if ratified and entered into force, commits the United States and the Russian Federation to further reduce our deployed strategic nuclear weapons in a predictable, transparent, and verifiable manner, increasing stability with other countries and demonstrating in a concrete way the U.S. and Russian commitment to our nonproliferation treaty obligations. This I believe will provide positive momentum for future U.S.-Russian collaboration and will provide further credibility for maintaining a strong leadership role for the United States in international nonproliferation initiatives.

Most importantly, the New START treaty accomplishes these objectives without jeopardizing U.S. national security and specifically will not jeopardize the ability of the United States to maintain the safety, security, and effectiveness of our NWS.

For these reasons, I urge this body to favorably consider the New START treaty.

Thank you very much. I look forward to your questions, sir.

[The prepared statement of Mr. D'Agostino follows:]

PREPARED STATEMENT BY HON. THOMAS P. D'AGOSTINO

Chairman Levin, Ranking Member McCain, and members of the committee, thank you for the opportunity to testify on the treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, known as "New START."

Last month, Secretary of Energy Chu testified before this committee on the New START treaty. He described the treaty's impact on Department of Energy (DOE)

and National Nuclear Security Administration (NNSA) activities, and our ability to ensure the safety, security, and effectiveness of the U.S. nuclear weapons stockpile under the treaty. I will reiterate the essential points made by Secretary Chu, and provide further information on NNSA activities to maintain the stockpile in the context of the New START treaty and the policies contained in the Nuclear Posture Review (NPR). Our strength rests on ensuring that our nuclear weapons stockpile remains safe, secure, and effective for as long as it is needed. Modernization and investment in our nuclear infrastructure is essential to this objective, while allowing a reduced role for nuclear weapons in our national security strategy. I will also comment on NNSA's role in the development and evaluation of treaty verification technology.

First and foremost, I want to make clear that the New START treaty will not affect NNSA's ability to maintain the safety, security, and effectiveness of the Nation's nuclear weapons stockpile. NNSA sites—to include our production, testing, and national laboratory facilities—will not be subject to inspection, and none of our operations will be subject to limitation. Our plans for investment in and modernization of the Nuclear Security Enterprise—the collection of NNSA laboratories, production sites and experimental facilities that support our stockpile stewardship program, our nuclear nonproliferation agenda, our naval nuclear propulsion programs, and a host of other nuclear security missions—are essential irrespective of whether or not New START is ratified. Treaty implementation will not affect our plans. Warheads removed from deployed delivery vehicles to meet New START limits will continue to remain available to support maintenance and surveillance activities. They may also be retained as inactive Reserve weapons, available to support nuclear component reuse if needed as part of future warhead life extension program (LEP) activities.

WARHEAD LIFE EXTENSION ACTIVITIES AND THE NPR

Ensuring the safety, security and effectiveness of the Nation's nuclear weapons stockpile is one of NNSA's primary missions. Maintaining the weapons stockpile without nuclear testing has been national policy for nearly 20 years, and we will continue to support that policy in the future. In addition to our maintenance, surveillance and warhead certification activities, important life extension milestones include the following:

- Completing by 2017 the ongoing LEP for the W76 warhead, which will extend its life for an additional 30 years;
- Completing a full scope LEP study for the B61 bomb and beginning production in 2017 to extend its service life, enhance its safety and use control features, and ensure its compatibility with modern aircraft; and
- Completing, with the Nuclear Weapons Council, a study of LEP options for maintaining the W78 ICBM warhead.

With respect to life extension options, while the NPR is clear that the United States will give preference to nuclear component refurbishment or reuse, it is equally clear that the full range of options will be considered for each warhead LEP, to include replacement of nuclear components. The report on the "New START treaty Framework and Nuclear Force Structure Plans," submitted to Congress in response to section 1251 of the National Defense Authorization Act for Fiscal Year 2010, further explains that "[w]hile the NPR expresses a policy preference for refurbishment and reuse in decisions to proceed from study to engineering development, the Laboratory Directors will be expected to provide findings associated with the full range of LEP approaches, and to make a set of recommendations based solely on their best technical assessments of the ability of each LEP approach to meet critical stockpile management goals (weapon system safety, security, and effectiveness)."

The directors of Los Alamos, Lawrence Livermore, and Sandia National Laboratories made their position on this approach clear in an April 9, 2010, joint statement. They assessed that "the approach outlined in the NPR, which excludes further nuclear testing and includes the consideration of the full range of life extension options (refurbishment of existing warheads, reuse of nuclear components from different warheads and replacement of nuclear components based on previously tested designs), provides the necessary technical flexibility to manage the nuclear stockpile into the future with an acceptable level of risk."

The Nuclear Posture Review also reinforced the necessity to maintain the capability of the most survivable leg of the triad with a sea-based strategic deterrent. Naval Reactors began reactor and propulsion plant design in fiscal year 2010 for the *Ohio*-class replacement submarine to support the Navy's schedule. Reactor plant components will be procured in 2017 to allow for the long manufacturing spans and need for these components in submarine construction. Research, development and

design efforts are underway for the development of reactor technologies to support the Navy's need for a reactor core that will last for the more-than-40-year life of the submarine. These efforts directly support recapitalizing the sea-based leg of the triad within full compliance of the New START treaty.

PRIORITIES FOR NNSA'S NUCLEAR SECURITY ENTERPRISE

The NPR concluded that the NNSA needed to recapitalize the aging infrastructure and renew our human capital base. The recently completed Stockpile Stewardship and Management Plan (SSMP) is the comprehensive resource plan to achieve this and to modernize NNSA's Nuclear Security Enterprise to support the objectives detailed in the Nuclear Posture Review. Implementation of the SSMP will allow us to accomplish the following:

- Strengthen the science, technology, and engineering base, including the computational and experimental capabilities, needed for conducting weapon system LEPs, weapons surety, surveillance, and annual certification without nuclear testing.
- Modernize the infrastructure necessary to fulfill stockpile stewardship requirements, including replacing outdated facilities with modern, efficient, cost-effective and properly-sized facilities. Key priorities are to:
    - Complete the design and begin building the Chemistry and Metallurgy Research Facility Replacement Nuclear Facility at the Los Alamos National Laboratory in order to complete construction by 2020, and ramp up to full operations by 2022;
    - Increase pit manufacturing capacity and capability at the Plutonium Facility at Los Alamos; and
    - Complete the design and begin building the Uranium Processing Facility at the Y–12 National Security Complex in order to complete construction by 2020, and ramp up to full operations by 2022.
- Recruit, develop, and retain the next generation of nuclear security professionals responsible for stockpile stewardship. These individuals are today, and will be in the future, our greatest asset. They face critical and persistent scientific challenges as they implement our national policy to consider all life extension options to maintain the nuclear weapons stockpile without nuclear testing. I believe that these challenges, combined with a national-level commitment to transform NNSA from a nuclear weapons complex into a modern, world-class 21st century Nuclear Security Enterprise will provide the environment to attract and retain the best and brightest scientists and engineers available. In addition, defense initiatives beyond stockpile stewardship, such as nuclear forensics and attribution, and treaty verification activities, provide a broadened mission that will push the envelope of nuclear technology and further challenge and develop our nuclear security professionals.

MAINTAINING WARHEAD RELIABILITY

U.S. nuclear warhead reliability has always been held to the highest standards—and these standards for warhead reliability will remain exacting and extremely high, regardless of stockpile size. Over the course of the past 20 years, the stockpile has been reduced from over 21,000 warheads to approximately 5,100 at the end of fiscal year 2009 within the context of science-based stockpile stewardship and the continuing moratorium on nuclear testing. During this time, the national laboratories have assessed our weapon systems on an annual basis and the Secretaries of Defense and Energy have annually certified to the President the safety, security and reliability of our stockpile. However, as the size of the stockpile continues to decrease, our deterrent must rely even more on a strong capabilities-based infrastructure that can respond rapidly to technical and geopolitical challenges—and this is what we will achieve through the programs and plans described in the SSMP. To ensure this infrastructure is in place when we need it, sustained national-level support over the next decade is essential.

Accordingly, we have included a substantial increase in funding in the fiscal year 2011–2015 budget request, shaped by our requirements and the ability of the Nuclear Security Enterprise to efficiently "ramp up" within the constraints of time, capacity and capability to spend the increased funds. In this regard, the President's budget request for the NNSA for the fiscal year 2011–2015 Future Years Nuclear Security Program is exactly right—it reflects what is both necessary and executable. The request includes an increase of $624 million in fiscal year 2011, and scales to $1.64 billion in fiscal year 2015. The administration's plan calls for sustained investments at these higher levels such that over the next decade the United States will

have invested over $80 billion in modernizing the NNSA infrastructure. This represents a nearly 30 percent increase over the next decade as compared with the investments in these programs over the course of the past decade. Again, however, sustained commitment and support over the next decade is essential.

NNSA SUPPORT TO TREATY VERIFICATION

The United States relies on NNSA and the national laboratories for the development, evaluation, and utilization of technologies for a number of treaty verification and nonproliferation initiatives. Our work in this area includes, for example: advanced safeguards technology development to support the International Atomic Energy Agency; equipment development for and monitoring of the conversion of highly enriched uranium (HEU) to low enriched uranium under the U.S.-Russia HEU Purchase Agreement; and monitoring the extraction of spent fuel rods at the Yongbyon reactor in North Korea and verifying that the removed fuel rods were actually spent fuel. For strategic arms control purposes, we leverage the expertise of our physicists and engineers to develop advanced radiation detection equipment, as well as analyze the impact of the use of this equipment on or near U.S. assets. With regard to New START, U.S. inspectors will use equipment developed by the NNSA National Laboratories to confirm that objects on deployed delivery vehicles that are declared to be non-nuclear are, in fact, non-nuclear. This equipment, which was originally developed for verification under the Intermediate-Range Nuclear Forces Treaty, was also used by U.S. inspectors for verification under the 1991 START treaty. Should new radiation detection equipment be required, specialists from throughout the Nuclear Security Enterprise will play an essential role in the development and evaluation process.

CONCLUSION

The New START treaty, if ratified and entered into force, commits the United States and Russian Federation to further reduce our deployed strategic nuclear weapons in a transparent and verifiable manner, thereby increasing stability between our countries, while demonstrating in a concrete manner the U.S. and Russian commitment to our obligations under the Nuclear Nonproliferation Treaty. This, I believe, will provide positive momentum for future U.S.-Russian collaboration, and will provide further credibility for maintaining a strong leadership role for the United States in international nonproliferation initiatives. Most importantly, the New START treaty accomplishes these objectives without jeopardizing U.S. national security, and specifically it will not jeopardize the ability of the United States to maintain the safety, security and effectiveness of its nuclear weapons stockpile. For these reasons, I urge this body to favorably consider the New START treaty.

Thank you. I look forward to answering your questions.

Chairman LEVIN. Thank you, Mr. D'Agostino.

General Chilton.

STATEMENT OF GEN. KEVIN P. CHILTON, USAF, COMMANDER, U.S. STRATEGIC COMMAND

General CHILTON. Thank you, Chairman Levin, Senator McCain, members of the committee. It's a pleasure to join you again today. I'm also pleased to be here with Dr. Miller and Mr. D'Agostino again, two great colleagues.

Mr. Chairman, I was fully consulted during the treaty negotiation process and I support ratification of the New START. Today I would like to briefly discuss three reasons why our Nation will be safer and more secure with this treaty than without it, and to highlight current challenges that must be addressed to ensure the long-term safety, security, and effectiveness of the U.S. strategic deterrent.

I ask that my entire statement be entered into the record.

Chairman LEVIN. It will be.

General CHILTON. Thank you, Chairman.

Mr. Chairman, throughout the NPR process and New START negotiations, STRATCOM's team played important analytical and ad-

visory roles. As the combatant command responsible for strategic deterrence planning, advocating for related capabilities, and executing operations at the President's direction, no military organization has a greater interest in the treaty's specifics than we do.

At the outset, our team analyzed the required nuclear weapons and delivery vehicle force structure and posture necessary to meet the current guidance. STRATCOM involvement and support to both the NPR and New START was continuous, providing options and engagement with the negotiating team throughout the New START process. The breadth and depth of our involvement gives me great confidence that the result does not constrain America's ability to continue to deter potential adversaries, assure our allies, and sustain strategic stability.

I believe that there are three reasons why the New START agreement represents a positive step forward. First, New START limits the number of Russian ballistic missile warheads that can target the United States, missiles that pose the most prompt threat to our forces and our Nation.

Second, New START's flexible limits on deployed and nondeployed delivery platforms retain sufficient flexibility in managing our triad of deterrent forces to hedge against both technical or geopolitical surprise.

Third, New START will reestablish a strategic nuclear arms control verification regime that provides access to Russian nuclear forces and a measure of predictability in Russian force deployments over the life of the treaty.

I think it's equally important to remember what New START will not do. Secretary Gates noted here last month: "The treaty will not constrain the United States from deploying the most effective missile defense possible, nor impose additional costs or barriers on those defenses." I wholeheartedly agree. As the combatant command also responsible for synchronizing global missile defense plans, operations, and advocacy, I can say with confidence that this treaty does not constrain any current or future missile defense plans.

In closing, let me say a word about the need to sustain a safe, secure, and effective nuclear deterrent. As Secretary Gates has also noted in his prepared statement last month, "America's nuclear arsenal remains a vital pillar of our national security, deterring potential adversaries and reassuring allies."

Today the deterrent is indeed safe, secure, and effective. But it is also in need. The NPR and administration plans recognize needs in infrastructure, human capital, life extensions, and delivery platform developments, and they include support for improving our nuclear enterprise, sustaining today's nuclear triad of delivery platforms, and exploring future triad platforms.

In order to sustain the deterrent and implement the NPR, we must commit to long-term investments that begin with several increases outlined in the President's fiscal year 2011 budget. They include: increased funding for NNSA for full-rate production of the W76–1 warhead for our submarine leg of the triad; full-scope nuclear and nonnuclear life extension of the B61 bomb to sustain its strategic deterrence and extended deterrence roles; and initiating studies to develop life extension options for the W78 ICBM war-

head. These investments are not only important, they are essential independent from the ratification of this arms control treaty.

I appreciate this committee's support for NNSA's investment in the National Defense Authorization Act for Fiscal Year 2011. This funding is very important and I'm grateful for this year's support.

Thank you again for the opportunity to be here with you today and I look forward to your questions.

[The prepared statement of General Chilton follows:]

PREPARED STATEMENT BY GEN. KEVIN P. CHILTON, USAF

INTRODUCTION

Chairman Levin, Senator McCain, and members of the committee, thank you for the opportunity to meet with you today. U.S. Strategic Command was closely consulted before and during negotiations on the New Strategic Arms Reduction Treaty (START), and I look forward to discussing the treaty with you today. I would like to note at the outset how proud I am of the extraordinary work the Command performed in support of these negotiations. We have an amazing team, and their diligence, expertise, and tireless work continue to ensure our ability to deliver global security for America.

NEW START

New START will enhance the security of the United States of America, and I support its ratification. Our nation will be safer and more secure with this treaty than without it. Let me briefly explain why, from the perspective of the combatant commander responsible for planning and executing strategic deterrence and nuclear operations.

First, New START limits the number of Russian ballistic missile warheads that can target the United States, missiles that pose the most prompt threat to our forces and our Nation. Regardless of whether Russia would have kept its missile force levels within those limits without a New START treaty, upon ratification they would now be required to do so. The New START bomber counting rules are unlikely to result in a reduction in Russian nuclear bomber forces, but these platforms have much less potential to be destabilizing, and we will retain the option to sustain equivalent capabilities.

Second, New START retains sufficient flexibility in managing our deterrent forces to hedge against technical or geopolitical surprise. To support the New START negotiation effort, U.S. Strategic Command analyzed the required nuclear weapons and delivery vehicle force structure and posture to meet current guidance. The options we provided in this process focused on ensuring America's ability to continue to deter potential adversaries, assure our allies, and sustain strategic stability for as long as nuclear weapons exist. This rigorous approach, rooted in deterrence strategy and assessment of potential adversary capabilities, supports both the agreed-upon limits in New START and recommendations in the Nuclear Posture Review (NPR). We will retain a triad of strategic nuclear delivery systems, and if we have a technical failure in one of our nuclear systems, we can rearrange our deployed force posture and structure within the treaty limits to compensate.

Third, New START will reestablish a strategic nuclear arms control verification regime that provides intrusive access to Russian nuclear forces and a measure of predictability in Russian force deployments over the life of the treaty. Such access and predictability contribute to our ability to plan confidently our own force modernization efforts and our hedging strategy. Without New START, we would rapidly lose some of our insight into Russian strategic nuclear force developments and activities, and our force modernization planning and hedging strategy would be more complex and more costly. Without such a regime, we would unfortunately be left to use worst-case analyses regarding our own force requirements. Further, we would be required increasingly to focus low density/high demand intelligence collection and analysis assets on Russian nuclear forces.

DETERRENCE CAPABILITIES

The nuclear enterprise remains, today and for the foreseeable future, the foundation of U.S. deterrence strategy and defense posture. The NPR recognizes this and makes a series of recommendations that I strongly urge Congress to fully support. Specifically, the NPR recommends moving forward with a number of nuclear enterprise sustainment projects, including strengthening our nuclear command and con-

trol structure; continuing development and deployment of our triad of delivery systems; maintaining a safe, secure, and effective stockpile; and revitalizing the National Nuclear Security Administration's aging infrastructure. America's triad of diverse and complementary delivery systems provides unique synergies that make our deterrent highly credible and resilient in the face of a variety of potential technological and geopolitical developments. The NPR endorses DOD efforts to explore future triad systems, specifically to extend the Minuteman III ICBM through 2030 and conduct studies now to inform decisions on a follow-on ICBM; to replace the *Ohio*-class SSBN at end of life for existing ships; and to study future long-range bomber capabilities. It also supports moving forward with full-rate refurbishment of the W76 warhead for our submarine leg of the triad; study of full-scope life extension of the B61 bomb (including enhancing safety, security, and use control) to sustain its strategic deterrence and extended deterrence roles; and initiating studies to develop life extension options for the W78 ICBM warhead, including the possibility of also adapting the resulting warhead for sea launched ballistic missiles and thereby reducing the number of warhead types.

Additionally, the NPR and the President's Budget recognize the need to improve, sustain, and ensure all necessary elements of a safe, secure, and effective deterrence enterprise, including weapons, delivery systems, warning and communications capabilities, and their supporting human capital and technological infrastructures, and to make sustained investments to adequately preserve these capabilities for the foreseeable future. These investments are required in order to confidently reduce the overall U.S. stockpile while sustaining the credibility of our nuclear stockpile, which is fundamental to effective deterrence. Investments that revitalize NNSA's aging infrastructure and intellectual capital strengthen our security with the facilities and people needed to address technological surprises, geopolitical change, and a range of cutting-edge national security challenges. In order to sustain the deterrent and implement the NPR, we must commit to long-term investments that begin with several increases outlined in the President's fiscal year 2011 budget, most notably a 13 percent increase in NNSA funding. These investments are not only important—they are essential.

CLOSING

Every day, U.S. Strategic Command remains focused on providing the President and future presidents with the options and flexibility needed for deterrence. Today, our deterrent is safe, secure, and effective; our forces are trained and ready; and the Command is faithfully and fully carrying out its mission each and every day. I am confident that the combination of New START ratification, implementation of the NPR's recommendations, and funding of associated investments will enable the men and women of U.S. Strategic Command to continue delivering global security for America today and in the future. Thank you again for the opportunity to testify before this committee.

Chairman LEVIN. Thank you so much, General Chilton.

Let's try a 7-minute first round.

I think you've all made reference to the flexibility of the lab directors to look at all options in terms of whether it's either refurbishment or whether it's reuse or whether it is replacement of a warhead. My understanding is that if there's a recommendation for replacement which the NWC makes, that that would require authorization by Congress by law. Is that correct, do you know, Dr. Miller?

Dr. MILLER. Senator, Mr. Chairman, that is correct. Approval by Congress would be required, including for the funding of that effort.

Chairman LEVIN. So that the policy of the administration is that there not be a replacement without specific approval of the President, but there's also a requirement in law that Congress authorize a replacement; is that correct?

Dr. MILLER. Yes, sir.

Chairman LEVIN. I think you've all testified that those requirements in no way limit the lab directors in terms of the options that they can look at and any recommendations that they make. As a

matter of fact, they're specifically told they're to look at all options for the life extension; is that correct?

Dr. MILLER. That is correct.

Chairman LEVIN. Mr. D'Agostino, is that your understanding?

Mr. D'AGOSTINO. Absolutely, sir. That's correct.

Chairman LEVIN. Now, on the silo conversion issue, I believe that, Dr. Miller, you've indicated that neither side can convert an ICBM or SLBM launcher for use as a missile defense interceptor. I think, Dr. Miller, you indicated that it would not be cost effective or operationally effective to do so, that it would cost less to actually build new interceptors rather than to convert those interceptors. Did I understand your testimony correctly?

Dr. MILLER. Mr. Chairman, we have deployed five GBIs in former ICBM silos at Vandenberg Air Force Base. So we have good experience with what the costs are, including the additional costs of modifying the structure and security associated with those silos. We now have extensive experience also in building new silos for GBIs at Fort Greeley. So we have a good understanding of what the costs would be for additional silos for GBIs and, as I said, confidence that it would be about $550 million for 10.

Chairman LEVIN. For the silos?

Dr. MILLER. To convert additional silos.

Chairman LEVIN. Okay.

Dr. MILLER. About $360 million for 10 new silos. In addition, the operating costs for converted old ICBM silos would be higher.

Chairman LEVIN. In addition to the cost issue, that it would make no sense from a cost perspective, is it also true that if you have that kind of conversion that there's greater chance for potential misunderstanding, miscalculation? In other words, if you use silos of one type for another purpose, does that not create a potential for miscalculation?

Dr. MILLER. Mr. Chairman, with the five former ICBM silos with GBIs at Vandenberg Air Force Base, we don't see that as a problem. By the way, those were grandfathered into the treaty, so those will continue to be allowed. Because those interceptors are at a different location from the three main ICBM fields that we have in the United States, there would be, obviously, a concern about locating BMD interceptors at locations very nearby our ICBM fields, and the concern would be that there might be confusion between the launch of an interceptor and the launch of an ICBM. Not confusion on our part, but possible confusion by the Russians.

Chairman LEVIN. Now, for all those reasons, it is our policy not to make those conversions; is that correct?

Dr. MILLER. That is correct.

Chairman LEVIN. So the prohibition in the treaty against conversion is a reflection of our policy. That's not just a concession; that's our policy?

Dr. MILLER. Mr. Chairman, it's a reflection of our policy and of the cost assessments completed that we previously discussed.

Chairman LEVIN. General Chilton, you've indicated in your statement that the New START treaty will reestablish a strategic nuclear arms control verification regime that provides intrusive access to Russian nuclear forces. We don't have any verification at the moment, is that correct?

General CHILTON. That's correct, Senator.

Chairman LEVIN. Do the verification provisions in the new treaty give you confidence to allow STRATCOM to have confidence in planning for U.S. forces and modernization?

General CHILTON. Mr. Chairman, it does. Without that, then we would have to just go on intelligence estimates and not have the insight that will be provided through the verification and inspection process to allow us to assess what we need to be doing more accurately with our forces.

Chairman LEVIN. In other words, the verification provisions give you confidence that Russia cannot achieve a militarily significant advantage undetected?

General CHILTON. Yes, that's correct, Mr. Chairman.

Chairman LEVIN. Now, you also said in your statement that we would, without the verification provisions in the new treaty, "unfortunately, be left to use the worst case analysis regarding our own force requirements." Let me see if I understand that. Are you saying that if under the previous verification provision with the number of warheads attributed to missiles and bombers, instead of actual numbers of warheads as in the new treaty, that we would have to retain a larger number of deployed systems and warheads than we would otherwise need?

General CHILTON. The uncertainty would be in the counting of the warheads, as you suggest, Mr. Chairman. With uncertainty, without any verification or insight into what the Russians were doing with their force structure and warhead deployment that is allowed for with the verification protocols of the treaty, then as the commander, without any knowledge, I would assume worst case.

Chairman LEVIN. Which would be a larger number than you might otherwise be needing?

General CHILTON. Correct.

Chairman LEVIN. There's a cost to that maintenance of the larger number?

General CHILTON. That decision would have to be taken, exactly what investments we might make for that uncertainty. But having the verification would remove even that concern.

Chairman LEVIN. Does a larger number than needed result in a larger cost?

General CHILTON. Certainly. If we were to determine we needed more warheads deployed and more warheads in the inventory, that would be more expensive.

Chairman LEVIN. Thank you.

Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

Dr. Miller, last month General Chilton stated that it was not only important, but essential, that the President committed to ensuring NNSA receive the full $624 million increase as proposed in his fiscal year 2011 budget. Last week the House Appropriations Energy Subcommittee marked up its spending bill and didn't fully fund the President's request for the weapons complex. Is that of concern to you?

Dr. MILLER. Senator McCain, the administration continues to support its request and will continue to do so as the process moves forward. We believe that the $624 million increase that you ref-

erenced is critical to moving forward with our nuclear weapons modernization effort and our work on infrastructure.

Senator MCCAIN. If it's that essential, if the cut remains in the final appropriations bill, would you recommend a veto by the President?

Dr. MILLER. Senator McCain, at this point I think you've asked me a question that, frankly, is perhaps above my pay grade. What I would do is provide our best assessment of the implications and specific consequences and do everything possible to support continuing to get to the administration's request on this funding level.

Senator MCCAIN. General Chilton, do you agree with the unclassified statement in the State Department verification assessment that "any cheating by the Russians would have 'little, if any effect'?"

General CHILTON. Senator McCain, I do agree with that.

Senator MCCAIN. You do agree with it?

General CHILTON. What I'm asked to do is preserve an effective deterrent, and I believe we can. With our assured response capabilities with our submarine force and with our ICBM force, I believe that we're in a good position vis-a-vis the Russians in this regard.

Senator MCCAIN. What this brings to the casual observer's mind, General, is if it doesn't have any consequences if they do any cheating, what's the point in having a treaty?

General CHILTON. There are consequences——

Senator MCCAIN. If we don't care whether they cheat or not, it has very little effect, why have a treaty?

General CHILTON. Senator, I'm sorry. Let me restate that. I do care if they cheat or not.

Senator MCCAIN. If it has little effect? You just agreed it has little, if any, effect.

General CHILTON. Senator, let me correct myself then. On our ability to deter the Russians with an assured response.

Senator MCCAIN. So it would have little, if any, effect, and we have a crisis and they own two or three times as many nuclear weapons as we have. That doesn't have any effect?

General CHILTON. Senator, I believe if they were to proceed in a fashion as you described it, tripled or even doubled their amount of weapons, I believe that would be detectable under the verification regime, and in that case, they would have walked away from the treaty. Hopefully, we would have had dialogue with them before that to understand what they were doing and why.

Senator MCCAIN. But minor cheating, they wouldn't have walked away from the treaty because that would have little effect? There's no logic to your statements and to—if cheating has very little, if any, effect, why we are—I always believed in all the treaties that I've been involved in in the past 28 years, General, that cheating does matter, that it does have an effect, and to say that it has little, if any, effect, then we've been wasting a lot of time and money on negotiations.

General CHILTON. Senator, I agree with you. It does have an effect.

Senator MCCAIN. So then you don't agree with the State Department's statement?

General CHILTON. In the narrow area of what my responsibilities are, to assure the deterrent, an overwhelming ability to respond, which is the baseline of the deterrent, in that narrow area I think we're in good position with the treaty. I also believe that we would be able to detect through the verification protocols any cheating, significant cheating, by the Russians.

Senator MCCAIN. I take it that you've read the NIE?

General CHILTON. I have, Senator.

Senator MCCAIN. Dr. Miller, what continues to trouble a lot of us is not the number of details, and they are very complex and understandably so, but what bothers a great deal of us is, I have two documents in front of me I think both you have seen. One of them is the statement of the Russian Federation concerning missile defense. The other one is the statement by the United States of America concerning missile defense. They're obviously at odds with each other, because the Russians say that the treaty may be effective and viable only in conditions where there is no qualitative or quantitative buildup in the United States' missile defense system capabilities.

Yet our statement was: "The United States missile defense system would be employed to defend the United States against limited missile launches and defend its deployed forces. The United States intends to continue improving and deploying its missile defense system in order to defend itself against limited attack."

Now, the Russian statement doesn't say that the treaty would be effective and viable only in conditions there's no qualitative or quantitative buildup in the United States' limited capability. There's a fundamental disagreement in both signing statements to any objective observer.

So I still don't know how you reconcile those two statements at some point that there isn't—if we continue to, as is stated by the United States, improve and deploy our missile defense systems in order to defend ourselves.

Maybe you can help us out here, doctor?

Dr. MILLER. Senator McCain, let me first very briefly just add on to General Chilton's response. His response focused appropriately on the military aspects of any cheating. Because we will have a diverse force structure under New START, with highly survivable systems, and because we will retain the ability to upload, from a military perspective we will be postured well to first deter cheating, but then to minimize its significance should it occur.

That said, any cheating by Russia on this treaty we would consider to be significant politically because——

Senator MCCAIN. I'm glad you would, because the State Department doesn't seem to. But go ahead. Let's get back to the——

Dr. MILLER. So on the—I'll stop there. I'll say perhaps more at another point on that issue.

Senator MCCAIN. By the way, if you'd like to elaborate on that response, I don't mean to cut you off. I'd be glad to have additional comments for the record.

Dr. MILLER. Thank you, sir.

Senator MCCAIN. I hope I didn't short-circuit you there.

Dr. MILLER. Thank you.

With respect to the Russian perspective on missile defense, I believe it's been clear since about March 23, 1983, when Ronald Reagan provided his so-called Star Wars speech, that the Russians would like to constrain the U.S. activities in missile defense.

Senator MCCAIN. I'm sure you remember that that was the Russian demand, which the President of the United States turned down at Reykjavik. That's a matter of record, of historical record, and a turning point in the Cold War.

He would not have agreed, in my view, to two conflicting statements being the result of an agreement.

Dr. MILLER. Senator McCain, our missile defenses are not constrained by this treaty, with the exception of Article 5 that I talked about before and its prohibition on the conversion from ICBM silos or SLBM launchers, or vice versa. The ability of the United States to provide effective missile defense for the Nation, for our forces overseas, and in partnership with our allies is unaffected by this treaty. There are no additional costs. There are no additional inhibitions on our ability to do that.

I think it's worth just reading very briefly the second part of the Russian statement on missile defense, understanding that it is nonbinding and it's not a part of the treaty, but a unilateral statement. The statement notes that the extraordinary events referred to in the treaty that could prompt Russian withdrawal would involve a buildup such that it would give rise to a threat to the strategic nuclear force potential of the Russian Federation.

That is their perspective. But as I noted before, when we have 30 GBIs, we have a long way to go before we have any capability that's close to affecting the strategic stability of the balance when they will have over 1,000 warheads under the New START.

President Medvedev was interviewed on April 9 on ABC, and it's a long quote, but just the last sentence of it says: "I would not want to create the impression that any change would be construed as grounds for suspending a treaty that we have only just signed."

[The information referred to follows:]

GEORGE STEPHANOPOULOS. And we've seen now a landmark agreement between the United States and Russia on nuclear weapons signed in Prague. And it was a hard fought agreement, and the issue of missile defence still seems to divide the United States and Russia. I just have a very simple question: if the United States continues to develop missile defence in Europe, will Russia withdraw from the START treaty?

DMITRY MEDVEDEV. I will try to explain how I view the situation today.

We spent quite some time and effort explaining to our American partners the link between strategic offensive weapons and missile defence. This issue concerns the configuration of nuclear forces, or, more precisely, the differences in configuration of nuclear forces in Russia and the USA. It also concerns our plans and those of our American partners.

The complex negotiations that took place resulted in the wording that has been included in the treaty's preamble. This wording reflects a well-known legal principle. As far as the specifics go, this wording states the link between strategic offensive weapons and missile defence systems.

It also states that the obligations forming the basis for the treaty's signature are deemed to have been formulated and approved by the parties to the treaty. If these obligations change this could be seen as jeopardising the treaty as a whole. This does not mean that if the USA starts developing missile defence the treaty would automatically be invalidated, but it does create an additional argument that binds us and that makes it possible for us to raise the question of whether quantitative change to missile defence systems would affect the fundamental circumstances underlying the treaty. If we see that developments do indeed represent a fundamental

change in the circumstances, we would have to raise this issue with our American partners.

But "*I would not want to create the impression that any change would be construed as grounds for suspending a treaty that we have only just signed.*" [Emphasis added.] Moreover, we agreed—I discussed this with President Obama, and our respective administrations discussed it—that we should cooperate on building a global missile defence system. But if events develop in such a way as to ultimately change the fundamental situation Russia would be able to raise this issue with the USA. This is the sense of the interpretation and the verbal statement made yesterday.

GEORGE STEPHANOPOULOS. So, if Russia feels this system, if it's built up, is a threat, then you withdraw. That's the qualitative change.

DMITRY MEDVEDEV. Then we could raise the issue of suspending the treaty, but I hope that this will not happen and that we will work on these matters, work on enhancing our forces and work on missile defence in consultation with each other, and in some areas, it would be good to work together.

Dr. MILLER. I have the sense that there could be continued statements in this regard. We are unsurprised that the Russians have desired to constrain our missile defenses. We continue to encourage them to cooperate on missile defenses to deal with the common threats that we face, and we will continue both to qualitatively and quantitatively improve our missile defenses and to seek their cooperation to move forward together to deal effectively with this threat.

Senator MCCAIN. My time has expired. I thank you, Mr. Chairman. I'm reminded of a Groucho Marx line: "You can believe him or your own eyes." I thank you, Mr. Chairman. I thank the witnesses.

Chairman LEVIN. Thank you, Senator McCain.

Senator Lieberman.

Senator LIEBERMAN. Thanks, Mr. Chairman. I was looking to the ceiling to see whether Groucho's duck was going to come down.

I thank Dr. Miller, Mr. D'Agostino, and General Chilton for returning. You have become recidivists before this committee, to our benefit, and we appreciate your service and your testimony.

I would guess that I'm in the same position as most, if not all, members of the Senate, which is that I hope to be able to vote to ratify the New START treaty, but for me, and I think for a lot of members of the Senate, there are two lines of questions that we need to have answered to give us that level of comfort.

The first has to do with the health, if I can put it that way, of our nuclear stockpile. That is, that as we reduce the number of deployed nuclear warheads, obviously we want to have a satisfactory level of confidence, to put it as simplistically as I can, that they work. The second is verification. Senator McCain has touched on both of these.

This series of hearings that Chairman Levin and Senator McCain have been conducting have been in a sense a refresher course, at least for me, on this whole subject area. One of the things that I've come to understand again—and I focus this to you, Mr. D'Agostino—is that nuclear weapons age, and as they age they become less effective; is that correct?

Mr. D'AGOSTINO. As they age, aging effects can make them less effective. Really it depends on the specifics of the material itself, and that's why we go through a very in-depth annual process of taking apart nuclear weapons, looking inside, noting any anomalies, and taking it from there. It's part of our stockpile stewardship program.

Senator LIEBERMAN. Right. Am I right, as someone said before the committee, that today the average age of our American NWS is greater than it's been, ever been before? Does that sound right?

Mr. D'AGOSTINO. That's correct, Senator.

Senator LIEBERMAN. So this is why we're focused on making sure that—and the fact is, and this is not a partisan fact—both parties are part of this—that we have put the nuclear weapons program of the United States, NNSA which you direct, under budgetary pressure over the last years. It's why so many of us as part of our consideration of the New START treaty are focused on making sure that we increase our investment in our nuclear stockpile to make sure that it works.

Senator McCain talked about the cut that the House Energy and Water Subcommittee made. This is significant to me and a lot of others, and I hope in the process that Congress will at least fund to the level that the administration has requested for fiscal year 2011. Obviously, it's very hard to bind a future Congress, but we certainly can bind the administration and ourselves for this coming year.

I do have a question to ask, just to try to stretch our capacity to bind here a bit. The fiscal year 2012 number in the future years nuclear security program is $7 billion, which is essentially a no-growth figure. It's exactly what the administration has requested for fiscal year 2011. Considering inflation, that means that there will be in fact a drop in fiscal year 2012 in funding for the nuclear program.

Why is that, Mr. D'Agostino? Why should we accept that as an adequate figure?

Mr. D'AGOSTINO. I'll talk to the specifics of the question, but I'd like to add a little bit with respect to the overall budget picture. In essence, we have a very significant increase from fiscal year 2010 to fiscal year 2011. That reflects the ability to execute the program and shows a commitment on the part of ourselves and the United States that this is important to maintain.

The fiscal year 2012 numbers, 2013, 2014, 2015, and 2016, and particularly fiscal years 2013, 2014, 2015, and 2016, increase dramatically.

Senator LIEBERMAN. Right.

Mr. D'AGOSTINO. What we say in our 1251 report and in our 3113 report, which is the 20-year look ahead, is that there is an expectation for some numbers to change as we get the project baselines well understood for the large budget drivers in that particular program, specifically the B61 life extension, as General Chilton referenced earlier, specifically the uranium processing facility and the chemistry and metallurgy replacement facility.

The report clearly states that as baselines are established—and what we're going to spend is a lot of time in the first 2 years getting those baselines down and then locking in those numbers into the out years—we do believe—the important thing for us and for me particularly as the program manager and someone who's been involved with this program for over a decade and a half, is the demonstrated ability to execute those funds well and in the areas they need to go. It was my assessment that this approach, the lay-

out that we have in our 5-year plan, is the right approach that we have put together. It's not just mine. The Secretary was involved.

Senator LIEBERMAN. I hear you, and I'd say that there are a group of us in both parties who probably would like to continue this discussion with you in the hope that—fiscal year 2012 is the next year, obviously. We can't quite control it legislatively, but we can reach toward it, and to see if we can bring some of that money that you have in your future plan forward to fiscal year 2012. But we'll talk more about that.

I want to get to one question on verification. The New START treaty does cut back in some significant ways, I think, from the verification mechanisms in START I. The one that concerns me most is with regard to telemetry. Parties are obligated under START I to exchange telemetry tapes, interpretive data, and acceleration profiles for every missile test flight, with the emphasis on "every." Under the New START treaty, the international exchange required—is required on at most five tests per year, and each country can determine which five they'll agree to exchange telemetry.

Russia is expected to test between 10 and 12 ICBMs per year and will likely therefore, we assume, because of its general concern about transparency in its strategic program, share with us data only on its older systems. So I think we make the—I understand the difference. We make it harder for our Intelligence Community to gauge exactly what the Russians are developing. I understand that may be different from exact verification here, but my bottom line here is that we're losing a capacity in the proposed New START treaty, verification capacity, that we had in START I, and I wanted to ask Dr. Miller or General Chilton both why we agreed to this and whether you're concerned about it.

Dr. MILLER. Senator Lieberman, the START treaty had a couple of provisions for which telemetry was important for verifying. The first was that it limited throw weight, and so when a missile was tested and its warhead was tested the telemetry, the information coming out from that test, was important to understand the throw weight of that missile, how much it could carry.

Senator LIEBERMAN. So they actually gave us tapes, if you will, from inside the missile?

Dr. MILLER. There were provisions for exchange of tapes and for open broadcast as well, and typically both of those would occur, and for non-encryption of those tapes and broadcasts.

The second provision in the previous START, for which telemetry was relevant, was that it had an attribution rule for warheads for each missile. So the SS–18 was counted as 10 warheads under START. If we then saw the Russians testing with 11 warheads, that would be a violation of the treaty, and the telemetry broadcasts and tapes associated with those tests were therefore directly relevant to the verification of START.

The New START treaty doesn't have limitations on throw weight and uses a different rule for accounting for warheads. It actually counts the warheads on each missile and delivery system—I'm sorry, on each missile, ICBM and SLBM—so that we don't have that attribution rule. Therefore telemetry does not play a role in verifying the provisions of the New START treaty as it did in the previous START.

Now, we were able to negotiate an exchange of telemetry, as you noted, for up to five exchanges per year, irrespective of the fact that it was not needed for verification of the treaty.

Senator LIEBERMAN. My time is up. General Chilton, I'd like to hear from you as this goes on. I'm concerned about this. I understand what you're saying about verification requirements, but it seems like an odd compromise to make. If the telemetry is not required for verification of the Russians' compliance with the treaty, then why even have five?

But to me it was quite valuable to us—and this gets into your area, General Chilton—in terms of assessing the capacity of the Russian missiles, which is important for our national security. So I'm puzzled why we didn't either fight for the same unlimited access to telemetry that was in START I or, if it didn't matter, then why even have five, because they'll give us data on their oldest missiles and it won't help us very much.

Dr. MILLER. Could I answer very briefly?

Senator LIEBERMAN. Yes.

Dr. MILLER. Senator, we think telemetry is a useful provision for improving transparency and for helping us understand each other's systems, and that we would intend to work to build on the provisions in the New START treaty to try to get the most useful exchanges possible.

Senator LIEBERMAN. My time's up. Thank you.

Chairman LEVIN. Senator LeMieux. Thank you, Senator Lieberman.

Senator LEMIEUX. Thank you, Mr. Chairman.

Thank you, Dr. Miller, Mr. D'Agostino, and General Chilton, for your service and for being here today. I want to speak with you first about tactical nuclear weapons and why they're not addressed in the treaty, as I understand it. In May, Henry Kissinger testified in front of the Senate Foreign Relations Committee that the large Russian stockpile of tactical nuclear weapons, unmatched by a comparable American deployment, could threaten the ability to undertake extended deterrence. According to the Congressional Strategic Posture Commission (CSPC), Russia has 3,800 tactical nuclear weapons, with a 10 to 1 advantage over us, and some are concerned that if you factor in those tactical weapons, this New START treaty will put us in a position where they have more total nuclear weapons.

So the question I have to start off with is, why were tacticals not contemplated and addressed in the treaty?

Dr. MILLER. Senator, when this administration came in there was a recognition that START was going to expire on December 5 of last year and that therefore we would be without any verification provisions or limitations at that time. Consistent with the recommendations of the CSPC, the Perry-Schlesinger Commission, the administration therefore made a decision to work with Russia to try to achieve a New START treaty as soon as reasonably possible. Didn't make it, obviously, by December 5, but came in several months later, so that we would have those verification provisions and data exchanges and other elements of the treaty in place, again consistent with the recommendations of the CSPC.

We also noted in the NPR that this was intended to be the next step, not the last step, and that we have suggested follow-on negotiations after ratification and entry into force, if that is provided by the Senate and the Duma, that would look at both tactical and strategic and both deployed and nondeployed nuclear weapons.

We continue to intend to pursue that path today.

Senator LEMIEUX. General Chilton, do you want to address this?

General CHILTON. Sir, there's not much I can add with regard to why we went, negotiated, and sat down and talked about this. It was a strategic arms reduction treaty, so it was focused on strategic weapons. I think maybe the only thing I would add is that the imbalance in the tactical area puts an exclamation point on why we have to continue to pay attention to the assurance aspect of our force structure, because our allies look at the tactical nuclear weapons through a different set of lenses than we would with regard to how they may threaten their nations.

Senator LEMIEUX. It occurs to me that the tactical in a lot of ways is more disconcerting than the strategic, just because it's harder to monitor where they are, they're portable, and they can be employed in ways that would be very disconcerting to our allies, as well as to us. Strategic, we think about the ICBM, and that's obviously something we have to keep track of. But in a world where we're concerned about nuclear proliferation, about rogue terrorist countries getting nuclear weapons, the fact that they're moveable seems to be something—I know the President has articulated that he's concerned about that.

Do you anticipate that we're going to be entering into another round of treaty negotiations soon? Is there anything planned to discuss tactical?

Dr. MILLER. Senator, first, we have encouraged and continue to encourage Russia to move its tactical nuclear weapons back into the interior of the country and to further improve the security of the storage of those weapons. They've made significant progress since the end of the Cold War, but we believe there's important progress yet to be made.

The President has asked us to consider what the next round of negotiations should address and, as I said, has given direction that it should include tactical as well as strategic and deployed and nondeployed.

In terms of aggregate numbers, just to give only the unclassified, obviously, in this setting, we have 5,113 nuclear weapons in the stockpile—that was declassified just a couple of months ago—and in addition to that have several thousand nuclear weapons awaiting dismantlement. I can't, in this open setting, speak to the number of Russian weapons.

But when people think about the U.S. nuclear arsenal, I think it's important to understand that there's more than the 1,550 that are referenced in the limits of the New START treaty.

Senator LEMIEUX. Do we believe that in entering into this agreement that Russia is already at the levels that the treaty requires, or are they going to have to make reductions?

Dr. MILLER. I'd defer the details to a classified setting. Our estimate is that, in terms of warheads and delivery systems, they are moving or have moved into the range of the treaty.

Senator LEMIEUX. I'm a newcomer to this process, but in trying to evaluate whether I would support this it's a big concern to me that we're not dealing with tacticals. It's a big concern to me that they probably are already at the levels that we were asking for, so we're not gaining a concession. It really comes down to verification, and that's obviously important, and being able to have an open process with them to know what they're doing with their weapons.

But then we get to the point that was very articulately made by Senator Lieberman, is that the verification component seems to be weaker than in the previous START treaty. So you wonder what we're gaining in this agreement. Then there's the issues that Senator McCain raised about the missile defense system.

Let me pose this question to you. Are you aware that the Russians are developing new weapon delivery systems to overcome any missile defense system that we would employ?

Dr. MILLER. Senator, I would prefer to answer that question in a classified setting.

Senator LEMIEUX. In terms of our triad, the comment was made earlier by Mr. D'Agostino that we are working on a follow-on to the submarine system and a new class of submarines. What about the rest of the triad, the ICBMs, the B–52s, the nuclear-launched cruise missiles? Are there plans in place to update our triad? I understand that there are expiration dates on the longevity of those aspects of the triad. They're not right on our doorstep, but they're coming quick. Do we have plans in place for the next phase of those weapons systems?

General CHILTON. Senator, I'll take that one. The work is underway on the studies required for the *Ohio*-class Trident submarine replacement. With regard to the Minuteman III, Congress has directed that we sustain that until 2030, and I believe adequate investments are in place for the issues that we're aware of today, and as they continue their studies, the Air Force will be able to do that and, in fact, will extend the Minuteman III.

Along those lines, though, in a couple of years we'll be lead time away from thinking about what would be the follow-on to the land-based deterrent. So they'll begin an analyses of alternatives (AOA) here and begin the initial studies for follow-on to the land-based deterrent appropriately here in the near-term.

Then of course, as you are aware, the long-range strike question as to what would be the follow-on to the bomber is being discussed in the Department right now and is an issue that the Air Force is taking on in this cycle.

Lastly, with regard to the air-launched cruise missile, we believe with modest investments in both the platform and the weapon that can be easily extended until 2030, which I think is appropriate to do, and then allow us to begin studies in about the 2015 time period to see what would be the follow-on replacement to that.

So all of these are in play now and they're absolutely important.

Senator LEMIEUX. Thank you, General.

My time is up. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator LeMieux.

Senator Reed.

Senator REED. Thank you very much, Mr. Chairman.

Thank you, gentlemen. Mr. D'Agostino, the inspection schedule and the verification are essential to the treaty, as it was with START I. But I think it's important to note that, as I understand it, in START I there were 70 sites in 4 different countries that had to be monitored, versus 35 sites and just Russia. So from the degree of the simplicity of streamlining, the challenge is not as—I'll let you characterize it. How does that change, the inspection schedule?

Dr. MILLER. Senator Reed, you're exactly correct. Under START I there were 70 sites in 4 different countries, including Ukraine, Belarus, and Kazakhstan, in addition to Russia. The Russians have declared 35 sites under the New START treaty. We have 18 inspections, 18 onsite inspections, allowed under the New START per year. There were 28 allowed under START I, so proportionately, in fact, we're doing somewhat better.

In addition, some of the so-called Type One inspections that we have under the New START treaty, of which there are 10 of the 18 Type Ones, those have an additional element that you can debate how to score it, but it provides something more than just a 1.0 in terms of when you conduct that inspection being able to do an additional look for nondeployed items as well.

Senator REED. So in effect, at first blush when you see 28 and then you see 10 plus 18, there might be the impression that we're missing something. But you do have to factor in the fact that we're looking at half the sites we did in START I.

Dr. MILLER. That's correct, sir.

Senator REED. One of the issues, General Chilton, here is that if we fail to ratify the New START treaty, what will it do to the whole issue of predictability, stability, transparency, things that at least we have with START I, which is not legally in effect, but out there as a format? Can you comment on that?

General CHILTON. Senator, today we have no verification or inspection rights with Russia because START I has expired. So what we're balancing is zero inspections in the future or the promises of the treaty before you for consideration.

But I would also add, it's just not the insights you would no longer have, but the constraints of the treaty actually do constrain Russia with regard to deployed launchers and deployed strategic weapons, and that's an important element as well. Without that, they are unconstrained.

Senator REED. So your judgment from your perspective is that relationship of the treaty would enhance stability and transparency into their operations?

General CHILTON. The term "stability" I always hesitate on because I think of strategic stability with regard to the force structure. But I think it would certainly do both of what you describe, Senator, and that is why I support ratification.

Senator REED. Thank you, General.

My colleague, Senator LeMieux, brought up the issue of tactical weapons. I thought it was interesting, the comments that Senator Lugar made in an op-ed he wrote that—and I'll quote them and see if you would associate yourself: "In fact, most of Russia's tactical nuclear weapons either have very short ranges, are used for homeland defense, are devoted to the Chinese border, or are in storage.

An agreement with Russia that reduced, accounted for, and improved security around tactical nuclear arsenals is in the interest of both nations, but these weapons do not compromise our strategic deterrent."

Is that accurate, General Chilton?

General CHILTON. Senator, clearly the most proximate threat to us are the ICBM and SLBM weapons because they can and are able to target U.S. Homeland and deliver a devastating effect on this country. So we appropriately focused in those areas in this particular treaty for strategic reasons.

Tactical nuclear weapons, the comments that you just read are valid with regard to their ranges, et cetera. But in reality, weapons can be put on platforms and moved at intercontinental ranges, but they don't provide the proximate threat that the ICBMs and SLBMs do. From a broader perspective, as we look toward reduction of total weapons you do have to take in follow-on negotiations. I strongly support that we look at the entire inventory of Russia in future discussions with them, because there are nuclear weapons and they do affect our allies in the region and that's important to us.

Senator REED. My sense—and I'll ask you for your sense, General—is that if this treaty is not ratified, the prospects of serious follow-on discussions about nuclear reductions are probably close to zero. Is that your sense?

General CHILTON. Senator, I couldn't speculate on that. I don't have an assessment on that.

Senator REED. Dr. Miller, can you speculate on that?

Dr. MILLER. Thank you for that opportunity, Senator Reed. I agree with your assessment.

Senator REED. Finally, Mr. D'Agostino. We here are looking very carefully at our nuclear enterprise, the laboratories and everything else. We all understand that there are budget issues, modernization issues, attracting the scientific talent that we need in a much different environment than 30 or 40 years ago. But I think we sometimes have a tendency to think that the other folks, the Russians, have this superb, highly polished and running at max efficiency institutional endeavor.

Can you comment on, particularly since we both, mercifully, abstained from testing for decades now, what their establishment looks like?

Mr. D'AGOSTINO. Yes, I'll do so, and of course keep it unclassified.

Senator REED. Yes, sir.

Mr. D'AGOSTINO. The Russian approach is a bit different than ours. The Russian approach is focused more on the production side, just keep building and keep taking things apart. So there's a fair amount of exercising of the infrastructure. Our approach has been to focus on deep understanding of what's happening inside the warheads themselves, using experiments, simulation, and tieing all these things together.

They're just two different approaches. That's not to say the Russians are not doing the science base. They are. That's not to say we aren't doing some production work. We are. They're just two different approaches to address the item.

With respect to the United States, though, I think what I've observed in this program over many years is that the thing that is so important to running a program like this, of this size and complexity, is some uncertainty about what the future is, what the country really wants. What's been great about what we've seen particularly over the last 2 years or so is a gathering of ideas and a certain consensus that's developing, a bipartisan consensus, if you will, that says it's important to have certainty in this program and it's important that the workforce understand that the Nation really cares about this program, because these are smart people that can get jobs elsewhere.

So from my standpoint, and it'll maybe go to answer one of the questions you asked General Chilton, the relationship of START is another piece of that certainty and predictability. It's the view that the workforce sees that there's a general consensus on the need to maintain the stockpile, the need to support science, and the need to modernize the infrastructure. The relationship of this treaty is another nail into that, locking in the national consensus on this approach. It provides the stability for the workforce, they know the country cares about it. It allows the program managers to adequately plan so that we'll know what size stockpile we're taking care of. It allows us to drive some efficiencies in our program, and that's what we've shown in our 1251 report and our 3113 report, sir.

Senator REED. Thank you very much, gentlemen.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Reed.

Senator Brown.

Senator BROWN. Thank you, Mr. Chairman.

Dr. Miller, Senator LeMieux and others have commented about the tactical nuclear weapons. In START I they were punted to the next treaty. In START II, which wasn't ratified, they were punted once again. Moscow, the same thing. Now we're in this potential treaty signing and it seems that it will be punted again.

Now, I'm having difficulty, and I am, like Senator LeMieux, one of the new guys, but I've been in the military for 30 years. I do understand tactics and a lot of that good training I received from the people of the United States. I'm trying to get my hands around the trust issue and the strategic versus tactical, ICBMs, just seeing how it affects us. Yes, I agree the long-range weapons obviously affect us, but we have troops throughout the world that can be dramatically affected by our failure to address the strategic—the tactical nuclear weapons as well.

I'm just wondering whether we're missing an opportunity, if we're just trying to get a victory here, political victory, versus actually getting a solid treaty that we can rely on. Any thoughts on that?

Dr. MILLER. Senator Brown, the tactical nuclear weapons are a concern of this administration. We have, as I think Senator Reed noted, emphasized the importance of their security, and the President has made it clear that we should look to future arms control negotiations where we aim to reduce those along with all other types of nuclear weapons.

The reason for focusing first on strategic nuclear weapons was not because of the lack of importance of tactical nuclear weapons, but because the START was expiring and with it the verification provisions and limits under the treaty that we believe are essential to reducing uncertainty associated with Russian strategic forces, also provide a basis for follow-on negotiations. I think it will be extraordinarily difficult to take that next step if we don't first have START ratified and enter into force.

This administration will continue to work on the security issues and continue to encourage Russia to move the weapons back and to improve their security. But at the same time, those follow-on negotiations will be much more likely to proceed if we have a basis in a New START treaty.

Senator BROWN. Mr. Chairman, we've had other hearings and we've actually had private opportunities to speak to up the food chain a little bit. So a lot of my questions have been asked and a lot of them are sensitive in nature. But I keep going back to why don't we try to go and renegotiate or incorporate a lot of these issues.

That issue for me is one of the more important issues. I understand we need to do this before we do that, but it's been START I, START II, Moscow. At what point do we stop beating around the bush and actually get serious and say, if we don't have this we're going to do that. Because there's just something gnawing at me that I have to get my hands around. I've been trying to do the appropriate research and speak to the appropriate people.

The trust element for me is something that I don't really see here, evidenced by your conversation with Senator McCain. What if they don't do it? What are the ramifications? What is the enforcement? What do we do? Do we say, "oh, you're bad!"? Where are the teeth?

Am I missing something?

Dr. MILLER. Senator Brown, if your question is about what if the Russians agree, that they ratify New START and that we ratify, and then they either cheat or break out, at a small level, where we're having the debate over whether an activity such as the type of reentry vehicle covers that are used in inspections is appropriate or not, we first would take it to the Bilateral Consultative Commission (BCC) and have that conversation, if necessary, then elevate it to more senior political levels.

If you're talking about significant changes in their posture that we judge to be cheating or breakout, we would have a range of options, starting with the political, but including steps to increase the alert levels of our strategic forces, if appropriate, and to increase the capabilities by uploading additional warheads on our missiles and bombers.

So we would have that response, and we believe that that capacity to respond in that way will contribute to giving them disincentives or, put differently, deterring Russia from cheating should any future leader have that inclination.

Senator BROWN. That's helpful.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Brown.

Senator Hagan's next.

Senator HAGAN. Thank you, Mr. Chairman.

Thank you, gentlemen, for being here today and discussing this very important issue with us.

Senator Lieberman asked a question concerning the aging of the stockpiles of nuclear weapons. My question is one step further and talking about the recruitment and the retention of the nuclear scientists and engineers that will be overseeing that. Last month during our committee's hearing, Secretary of Energy Steven Chu indicated that he was concerned about the ability to recruit and retain the best and the brightest nuclear scientists and engineers for the stockpile stewardship and life extension program.

He emphasized that a primary obstacle is the perceived lack of financial stability and importance in this program. He underscored that nuclear scientists and engineers need to believe that the U.S. Government cares about the nuclear life extension.

Compounding our recruitment problems is the fact that a significant portion of our nuclear scientists and engineers in our national laboratories will be eligible for retirement in the next 5 years, and without an infusion of younger talent before those retirement dates we are at risk to lose the invaluable institutional knowledge with regards to addressing the challenges in maintaining our nuclear stockpile. This is a concern to me because stewardship is becoming technically more challenging as our weapons continue to age beyond their intended lifetimes.

Two questions, primarily to you, Mr. D'Agostino, are: Do the national laboratories have a recruiting strategy and set of agreed-upon goals and objectives to recruit new talent? What kind of university partnerships do the national laboratories have in order to bring in a stream of new talent? Additionally, how do the national labs envision sustaining this recruitment of personnel with specialized technical skill sets and, more importantly, institutionalizing the mentoring with the older employees to retain the decades-long institutional memory?

Mr. D'AGOSTINO. Thank you very much, Senator, for the questions. Secretary Chu is exactly right. When he came into this position over a year ago, I had an opportunity to describe the program to him as I carried forward from my previous role in the previous administration. He took a look just at the budget and then he ended up talking to the lab directors personally. When you look at the science budget, he saw over a period of time, a dramatic decrease in that, and that clearly was affecting the morale at the laboratories themselves.

Just as important as the morale, though, was this lack of consensus that we as a Nation had an understanding of where we were going with these nuclear programs. What we have right now is that understanding. Now, that understanding has actually motivated the workforce recently. They understand that it's important, that the Nation cares about wanting to maintain the stockpile.

So the laboratories as a result of that—in fact, previously we did have a recruiting strategy. We've updated that strategy because of this infusion and the request for additional resources. This strategy is based on a very systematic assessment of the critical skills that are needed to maintain the stockpile and do all of the other nuclear security work that we have.

Particularly in radio-analytic chemistry, that's a skill that we need to maintain to do nuclear forensics work. It's the skills associated with being able to design radiation detection devices, and not only that, but the skills associated with running large experiments, not underground tests but large experiments, and using the computers to pull these things together.

We have joint programs with a set of universities, a wide set of universities around the country. We have a program called the Academic Strategic Alliances program, which has strategically aligned our laboratories and universities. This provides the laboratories a foot in the door to that recruiting, that talent pool that's out there.

Finally, as our senior scientists retire, we take those in many cases and sign them for a mentoring role, to come back and to follow through, because they have clearances typically, and obviously they're experienced, and they typically are wanting to engage in work the country cares about. So we have a mentoring role.

The last critical piece to all of this is what I would call real work. It's important for our scientists and engineers and production technicians at the nuclear security enterprise to do real work, work on the stockpile itself. The three main pieces that General Chilton referred to, which are working on finishing the W76 life extension; working on the B61 life extension, to include the nuclear and the non-nuclear components; and starting to think about concepts for the W78 warhead, which we know is aging, all that is real work. They're frankly quite energized about that. That last piece is very important, and that's what we've laid out in our 10-year plan and in our 1251 report.

Senator HAGAN. Thank you.

During this committee's June 17th hearing on the New START treaty, Secretary Clinton indicated that it appears as though the Russians have postponed the sale of the S–300 long-range surface-to-air missile system to Iran. During the hearing Secretary Clinton and Secretary Gates indicated that Russia did not deliver the system because of improved U.S.-Russian relationship building.

Some experts indicate that not ratifying the New START treaty would send a negative signal to Russia that may cause them to not support U.S. objectives with respect to dealing with the Iranian nuclear program or implementing the new round of U.N. sanctions against Iran.

Dr. Miller, what strategic impacts will ratifying the treaty have on U.S.-Russian talks with respect to Iran's ambiguous nuclear program, and how would not ratifying the treaty affect our cooperation with Russia in dealing with the Iranian nuclear program or implementing the new round of U.N. sanctions?

Dr. MILLER. Senator, you're right that Russia postponed the delivery of the S–300 to Iran and we hope that that postponement continues indefinitely. The state of the U.S.-Russian relationship is obviously an important element in thinking about what the future is, not just of that issue of the S–300, but also, as you suggest, of our ability to convince Iran to give up its efforts to move forward with its nuclear programs.

The improvement in U.S.-Russian relations is difficult to quantify, but it is real. Our ability to work together on the issues associ-

ated with Iran, the Russian response also with respect to working to denuclearize North Korea and continued efforts there in response to the *Cheonan* sinking, are some of the signs that we see that this is having—that we're headed in a productive direction. It does not mean we won't have our differences. It does not mean we may not even face setbacks. But it's clear that the New START treaty has been a very important part of moving the relationship forward.

Senator HAGAN. Thank you. My time has expired.

Chairman LEVIN. Thank you very much, Senator Hagan.

Senator Collins.

Senator COLLINS. Thank you, Mr. Chairman.

Dr. Miller, I want to follow up with you on the discussion that you had with Senator Lieberman about telemetry. You stated that the second reason telemetry was important under the original START was to ensure that ICBMs were not armed with a number of warheads in excess of the number of warheads attributed to each ICBM under the START counting rules. The original START counting rules, as I understand them, attributed to each ICBM the maximum number of warheads that it was believed to be able to carry. If telemetry can be used to verify the actual number of warheads, as you seem to be saying in response to Senator Lieberman, why wouldn't that information under the counting rules of the New START treaty, which counts the number of deployed warheads missile by missile, be even more important?

It's obviously more difficult for us to verify the number of warheads if we're trying to count missile by missile than if we're assuming the maximum and can use telemetry to verify that or to see if there is a way to carry additional warheads. So it seems to me that your answer to Senator Lieberman doesn't add up, because it seems to me that it's more important that we have telemetry in order to verify the number of warheads under the new counting rules. So explain this to me?

Dr. MILLER. Senator Collins, under the previous START you are correct that for ICBMs and SLBMs there was an attribution rule. We wanted it to be as close as possible to the maximum, but in fact believe that, for example, the SS–18 could have carried more than 10 warheads should Russia have so decided. If we had seen them testing with 11 or 12 or 13, that would have been an indication of a violation of the treaty under START.

Now, in the New START treaty each side would have the freedom to mix, in other words to have the number of warheads on a given delivery system that they decide and they declare. That number would be subject to onsite verification. So as an example, if we saw the Russians testing an SS–18 missile with five or six or seven or eight, we would then expect that they declared some with that number. But the real issue would be what do they have—not what do they test, but what have they deployed. The telemetry doesn't provide any insight into what's deployed. For that we need the combination of declarations, national technical means, and then reinforced critically by onsite inspections where we go and actually look under the hood and see what the numbers are.

Senator COLLINS. But the number of onsite inspections is also limited under New START and is less extensive than under the old

START. It worries me because it seems that you're limiting the number of onsite inspections, you're allowing the Russians to choose the site, we're no longer going to be monitoring 24 hours a day what's coming out. Instead, there's this notice provision. Plus we're limiting telemetry.

Doesn't the combination of that make verification—and we've changed the counting rules. So it worries me that the combination of those factors—more limited onsite inspections, more limited telemetry, and a change in the counting rules—makes it more difficult for us to verify compliance.

Dr. MILLER. Senator, let me respond to each of those as succinctly as I can. First, with respect to the numbers of inspections, the New START treaty has 18, the old START had 28. The New START treaty has to deal with 35 facilities, the old START had to deal with 70. That means that on a proportional basis the New START treaty is by number of facilities, greater proportionally.

Second, with respect to onsite inspections, the inspecting side chooses the site and gives advance notice, relatively short notice as well. When they get to the site for their inspection, they then will have an opportunity to select which system to focus on and therefore which, for example, missile to pull the cover off and to look at the number of reentry vehicles. So that anything that didn't look right with respect to previous data declarations, that we gathered from our national technical means, or that looked like it wasn't correct in the database, which is constantly updated, we would then be able to go test with an onsite inspection where the inspecting party chooses the timing and which systems are inspected.

Senator COLLINS. Let me switch to a different issue that has been brought up several times by my colleagues, and that is the impact of New START on our ability to pursue advances in missile defense. Former Under Secretary of State Ambassador John Bolton has written that the President has essentially given Russia a de facto veto over U.S. missile defense plans, and he says as a result advances in missile defense are now effectively impossible if this START is entered into and remains in force.

Do you believe that the Phased Adaptive Approach (PAA) to missile defense in Europe represents a qualitative or quantitative improvement in our missile defense systems?

Dr. MILLER. Yes, Senator, I do believe the PAA in Europe and the application of that approach in other regions will constitute a qualitative and a quantitative improvement of our missile defenses, and we have briefed the Russians on the PAA. I've done so several times, including the first time the day that the announcement was made I briefed Ambassador Kislyak, the Russian ambassador to the United States.

We have made it clear that each of the phases will involve improved capabilities and that going through phase 4 of the PAA for Europe, we will have additional numbers of interceptors with increasing capabilities deployed.

Senator COLLINS. I agree with your assessment that it represents both a quantitative and qualitative improvement, but then I have a difficult time reconciling the Russians' assertion that they would withdraw from the treaty if we increase either the quantity or the quality of our missile defense. It seems inconsistent to me.

Dr. MILLER. Senator, they understand both the capabilities of the system and the fact that it will not pose a threat to the strategic capabilities of the Russian Federation. The deployments in Europe are not going to have the ability to intercept ICBMs launched from Russia aimed at the United States and Russia understands that.

At the same time, it is very clear that we are committed not only to the improvements of our system for the PAA in Europe and elsewhere around the globe; we've also made very clear that we are committed to improving our capabilities for Homeland defense. We currently have 30 GBIs and we will improve their capability as necessary to deal with the threat to which they're aimed, which is the North Korean and Iranian challenge. The Secretary of Defense, as you also know, approved moving forward with eight additional silos at Fort Greeley so that in the event we see the threat grow faster than expected, we would have the ability to add additional capability.

The Russian statement is nonbinding. It's not a part of the treaty. It concludes by noting that the issue is any set of capabilities that would give rise to a threat to the strategic nuclear force potential of the Russian Federation. We don't believe that that is going to occur, but irrespective of that, we have made clear in every possible way, through public statements, testimony, our budget, our BMDR, and indeed discussions, diplomatic discussions with the Russians, that we would intend to continue to improve our missile defenses to deal with the threats that we face.

Senator COLLINS. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you.

We ought to, if it's all right with Senator Collins, put both the unilateral statements in the record at this time.

Senator COLLINS. Yes, thank you.

[The information referred to follows:]

OFFICIAL TRANSLATION

Statement of the Russian Federation Concerning Missile Defense

The Treaty between the Russian Federation and the United States of America on Measures for the Further Reduction and Limitation of Strategic Offensive Arms signed at Prague on April 8, 2010, may be effective and viable only in conditions where there is no qualitative or quantitative build-up in the missile defense system capabilities of the United States of America. Consequently, the extraordinary events referred to in Article XIV of the Treaty also include a build-up in the missile defense system capabilities of the United States of America such that it would give rise to a threat to the strategic nuclear force potential of the Russian Federation.

United States Department of State

Bureau of Verification, Compliance, and Implementation

Washington, D.C. 20520

April 7, 2010

Statement by the United States of America Concerning Missile Defense

The United States of America takes note of the Statement on Missile Defense by the Russian Federation. The United States missile defense systems are not intended to affect the strategic balance with Russia. The United States missile defense systems would be employed to defend the United States against limited missile launches, and to defend its deployed forces, allies and partners against regional threats. The United States intends to continue improving and deploying its missile defense systems in order to defend itself against limited attack and as part of our collaborative approach to strengthening stability in key regions.

April 7, 2010

Statement of the United States of America

Trident I SLBMs

In connection with the Treaty between The United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, the United States of America declares that Trident I SLBMs, which were contained in Ohio-class submarines, are no longer SLBMs of an existing type and their launchers have been converted in a manner that renders such launchers incapable of launching Trident I ballistic missiles. The remaining Trident I SLBMs will not be used for purposes inconsistent with the Treaty.

Chairman LEVIN. Thank you very much.

Senator Ben Nelson.

Senator BEN NELSON. Thank you, Mr. Chairman.

Thank you, gentlemen. General Chilton, at the NPR hearing this last April you stated you fully support—and I think you did as well today again—the New START treaty and its associated reduction to our nuclear force. You stated that you were fully involved. Could you describe your role and your responsibilities that are involved in maintaining a safe, secure, and effective nuclear deterrent?

General CHILTON. Senator, thank you. My role is in a couple areas. One, I'm an advocate, so, based on the guidance given to me by the President and the Secretary of Defense, we at the command assess what is militarily required to meet that guidance. It falls into three fundamental areas. One includes the weapons themselves. So I come and support Mr. D'Agostino's programs and work

closely with them to make sure that the requirements are understood for our needs for the weapons, but also his requirements are understood and advocated for to support those.

Second would be along the line of delivery systems that are required to support the strategy and the guidance. We do that through DOD in supporting the three legs of the triad.

There is another element of that as well that probably doesn't get as much visibility, and that is the nuclear command and control portion, which is also fundamentally essential to the deterrent. So you need all three of those parts and our job is not only to advocate for them, but as they are fielded to ensure their readiness to be able to respond to any direction we might get from the President of the United States.

Senator BEN NELSON. In your opinion, would the new treaty adversely impact your ability to carry out your duties?

General CHILTON. No, sir, it would not.

Senator BEN NELSON. What are the ramifications of not putting a treaty into place?

General CHILTON. Senator, two that would give me concern. First, we would lose the transparency provided by the verification and inspection protocols that are in the treaty, which have lapsed since START I ended in December of last year. I think that's very important.

Second, there would be no constraints placed upon the Russian Federation as to the number of strategic delivery vehicles or warheads they could deploy. I think that's important to the United States, that there be limits there, limits that we would also be bound by, obviously.

Senator BEN NELSON. Thank you.

Dr. Miller, what level of verification do we have at the moment? I assume the answer is zero.

Dr. MILLER. Senator Nelson, today we would rely solely on national technical means.

Senator BEN NELSON. That's not justification for entering into a treaty that is inadequate. We understand that. But one of the questions I would have is, you mentioned the ability to look under the hood to see what the other side is doing. Does this potentially, this treaty, give us the ability to look under at least the same number of hoods that we looked under during the initial START?

Dr. MILLER. Senator, proportionally the answer is yes, proportionally, because we're allowed 18 inspections per year, there were 28 in START, but, as we talked about before, there are half as many facilities under New START as there were at the entry into force of the START treaty.

With the combination of onsite inspections, with the other verification provisions, including non-interference with national technical means, but also data exchange, notification requirements, the maintenance of an up-to-date database of the disposition of all Russian forces, and unique identifiers, which are an important extension from START, all contribute to giving us an effective verification regime.

Senator BEN NELSON. Dr. Miller, I think it would be fair to categorize your comments about tactical versus strategic review as a two-step process: step one being this New START treaty; step two

being starting the process of looking at tactical warheads. Now, there's a suggestion that somehow, since we didn't do steps one and two together in the New START treaty, that there's something that's defective about what we've done.

What were the reasons that you didn't have the two-step process in START I? Or is it criticism that is being leveled today against the New START treaty a criticism that could have been just as easily leveled against the first START?

Dr. MILLER. Senator, in principle that could have been. Let me just say that if we don't move forward with the New START treaty relationship and entry into force, it will be much more challenging to try to move forward to something beyond it. In fact, it's difficult to see how we would do so, how we would then move forward with an effort to reduce strategic and tactical in both deployed and nondeployed.

This administration and previous administrations have paid attention to the potential dangers associated with tactical nuclear weapons. The Nunn-Lugar effort for cooperative threat reduction has made good progress there in terms of improving security. We believe we have a long way to go. We would intend to do that, to continue to press on improving security for tactical nuclear weapons in parallel with negotiations on reducing tactical nuclear weapons. We understand that, given the relative numbers at this point, that the New START treaty is, while it's essential for establishing the verification regime and a basis for further negotiations, that from this point forward it will make sense to broaden the aperture and deal with all nuclear weapons.

Senator BEN NELSON. It was a matter of prioritization with the first START treaty, just as it is a matter of prioritization with this treaty. But second, because they weren't both accomplished in the first START treaty, strategic and tactical, it has now become a two-step process to accomplish it at this point in time.

Are you satisfied that we've made every effort, that every effort that we're making now to enter into new discussions about tactical—are those discussions ongoing at the present time, recognizing you have to get the first one done before you do a second one? But are discussions under way right now?

Dr. MILLER. Senator Nelson, we have made clear this administration's interest in those further discussions with the Russian Federation, and also understand that the prospect for those discussions going forward prior to START ratification and entry into force are minimal. It really will need to be, as you said, sir, a two-step process. We are engaged in our own analysis and planning at this point. We've indicated an interest, but we have not gotten at this point a positive response from the Russian Federation and, frankly, would not expect to until we're on the other side of New START ratification discussion.

Senator BEN NELSON. If the New START treaty is not ratified, what are the opportunities to go back and now start and try to talk about the tactical weapons in another treaty?

Dr. MILLER. Senator, that scenario——

Senator BEN NELSON. I know I'm asking you to speculate.

Dr. MILLER. I would speculate that that would make things much more difficult.

Senator BEN NELSON. Thank you very much.

Thank you, Mr. Chairman.

Chairman LEVIN. More difficult meaning less likely we would succeed in negotiating such reductions?

Dr. MILLER. Yes, sir, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Nelson.

These unilateral statements that we've referred to are similar, are they not, to unilateral statements which were made for the first START in June 1991, when then the Soviet negotiator in his unilateral statement said: "This treaty may be effective and viable only under conditions of compliance with the Antiballistic Missile (ABM) Treaty"? Is that correct?

Dr. MILLER. Mr. Chairman, they are analogous in that regard and——

Chairman LEVIN. Our response to that statement was: "Unilateral statements that a future hypothetical U.S. withdrawal from the ABM Treaty could create such conditions are without legal or military foundation." That was our unilateral response, is that correct?

Dr. MILLER. Yes, sir.

Chairman LEVIN. I'll make these part of the record.

Why, when answering questions about the unilateral statements and saying they're not legally binding, don't you refer to the almost perfect example of what happened in 1991 when the Soviets said something was going to happen if something else happened and, by the way, something else did happen, we withdrew from the ABM Treaty, and there was no effect on the implementation of START I? Why isn't that in your answer?

Dr. MILLER. Senator, thank you for that recommendation.

Chairman LEVIN. I'm just curious. Am I missing something? It seems to me that, hey, we've been there, done that, it's proven to have no effect whatsoever.

Dr. MILLER. Senator, I believe we put that on the record at some points over the last couple of months. But we also want to note that it is, in fact, the case that unilateral statements are just that.

Chairman LEVIN. No, I know it has been made part of the record in other hearings, but it's not always part of the answer. It seems to me that's the most effective answer. If it's proved its ineffective, nonbinding impact before when we pulled out of a treaty and the Russians, the Soviets, then in 1991 said what would happen if we did, it seems to me that's proof positive that this is not binding now. If it wasn't binding in 1991, these kind of unilateral statements aren't binding now.

I would think that's the clearest answer to me. But in any event, I would urge you to include that in your answers. We will make it part of the record at this time these two unilateral statements before START I.

[The information referred to follows:]

STATEMENTS ON THE RELATIONSHIP OF STRATEGIC ARMS REDUCTION TREATY (START) AND ANTIBALLISTIC MISSILE (ABM) READ AT A MEETING BETWEEN U.S. AMBASSADOR BROOKS AND DEPUTY FOREIGN MINISTER OBUKHOV ON JUNE 13, 1991.

STATEMENT BY THE SOVIET SIDE AT THE U.S.-SOVIET NEGOTIATIONS ON NUCLEAR AND SPACE ARMS CONCERNING THE INTERRELATIONSHIP BETWEEN REDUCTIONS IN STRATEGIC OFFENSIVE ARMS AND COMPLIANCE WITH THE TREATY BETWEEN THE UNITED STATES AND THE UNION OF SOVIET SOCIALIST REPUBLICS ON THE LIMITATION OF ANTI-BALLISTIC MISSILE SYSTEMS

In connection with the treaty Between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms, the Soviet side states the following:

This treaty may be effective and viable only under conditions of compliance with the treaty between the United States and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems, as signed on May 26, 1972.

The extraordinary events referred to in Article XV[1] of this treaty also include events related to withdrawal by one of the Parties from the treaty on the Limitation of Anti-Ballistic Missile Systems, or related to its material breach.

STATEMENT BY THE U.S. SIDE AT THE U.S.-SOVIET NEGOTIATIONS ON NUCLEAR AND SPACE ARMS

While the United States cannot circumscribe the Soviet right to withdraw from the START treaty if the Soviet Union believes its supreme interests are jeopardized, the full exercise by the United States of its legal rights under the ABM Treaty, as we have discussed with the Soviet Union in the past, would not constitute a basis for such withdrawal. The United States will be signing the START treaty and submitting it to the U.S. Senate for advice and consent to ratification with this view. In addition, the provisions for withdrawal from the START based on supreme national interests clearly envision that such withdrawal could only be justified by extraordinary events that have jeopardized a Party's supreme interest. Soviet statements that a future, hypothetical U.S. withdrawal from the ABM Treaty could create such conditions are without legal or military foundation. The ABM Treaty, as signed on May 26, 1972, has already been substantially amended and clarified by subsequent agreements between the Parties. Moreover, current and future negotiations, to which the Soviet Union committed in the June 1990 Summit Joint Statement, could lead to significant additional changes in the ABM Treaty, or its replacement. Changes in the ABM Treaty agreed to by the Parties would not be a basis for questioning the effectiveness or viability of the treaty on the Reduction and Limitation of Strategic Offensive Arms.

Chairman LEVIN. On the question that you were asked, General, about detecting cheating and what the effect would be from a military perspective if there were cheating, there's an unclassified portion of a classified Department of State verification report dated July 12, 2010, and the first one that I'm going to make part of the record, the first unclassified paragraph relative to this subject—and I want to ask you whether you concurred in each of these paragraphs: "Deterrence of cheating is a key part of assessment of verifiability and is strongest when the probability of detecting significant violations is high, the benefits to cheating are low, and the potential costs are high. We assess that this is the case for Russian cheating under the New START treaty."

Is that familiar to you, that paragraph?

General CHILTON. It is, and I agree with that, Senator.

Chairman LEVIN. Now, the next unclassified paragraph on that page is the following: "Given the terms of the New START treaty, the potential benefits to be derived by Russia from cheating or breakout from the treaty would appear to be questionable. Because the United States will retain a diverse triad of strategic forces, in-

[1] As written, understood to mean "Article XVII". Two Treaty Articles were included after the statement was made, but before the treaty was signed.

cluding single-warhead ICBMs, nuclear-capable heavy bombers, and a significant fraction of total deployed warheads on strategic submarines, any Russian cheating under the treaty would have little, if any, effect on the assured second strike capabilities of U.S. strategic forces. In particular, the survivability and response capabilities of strategic submarines and heavy bombers would be unaffected by even large-scale cheating."

Are you familiar with that paragraph?

General CHILTON. I am, Senator, and I agree with it.

Chairman LEVIN. You agree with that.

Next unclassified paragraph: "The costs and risks of Russian cheating or breakout, on the other hand, would likely be very significant. In addition to the financial and international political costs of such an action, any Russian leader considering cheating or breakout from the New START treaty would have to consider that the United States will retain the ability to upload large numbers of additional nuclear warheads on both bombers and missiles under the New START, which would provide the ability for a timely and very significant U.S. response."

Are you familiar with that one?

General CHILTON. I am, Senator.

Chairman LEVIN. Do you agree with that?

General CHILTON. I do, Mr. Chairman.

Chairman LEVIN. Finally on this page: "The combination of improved U.S. understanding of Russian strategic forces resulting from the implementation of the START, U.S. National Technical Means Capabilities, the New START treaty's verification provisions and a favorable posture for deterring cheating or breakout results in a New START treaty that is effectively verifiable."

Do you agree with that? Are you familiar with that?

General CHILTON. I'm not sure I'm familiar with that precise quote, Mr. Chairman. But, hearing it, I do agree with it.

Chairman LEVIN. Now, on the question of the telemetry Senator Lieberman asked a question about, if we agreed to obtain the telemetry or exchange telemetry on five launches per year, as I understand or remember the language, if telemetry is not important why did we negotiate for five? I don't think the answer was very persuasive on that. I didn't understand it and I think in terms of the time, I think if you would, it would be better to give us an answer for the record, Dr. Miller.

There is an apparent inconsistency. We get less telemetry, but we don't need it. Then, as Senator Lieberman points out, if we don't need it why did we negotiate for five? I think that the answer needs to be amplified because it was either not particularly clear or wasn't particularly persuasive, or maybe there is no persuasive answer. But if there is one, we would appreciate your giving it a go on the record if you would. Will you do that?

Dr. MILLER. Yes, Mr. Chairman.

[The information referred to follows:]

The previous START treaty had more extensive provisions related to telemetry than New START because it contained limits, prohibitions, and obligations that required the analysis of telemetric information to ensure that a Party was complying with the treaty. The New START provisions relating to telemetry reflect the fact that there are no specific obligations, prohibitions, or limitations in the new treaty that require the analysis of telemetric information in order to verify a Party's com-

pliance with the treaty. For instance, the treaty does not limit the development of new types of missiles, so there is no requirement to determine the technical characteristics of new missiles such as their launch weight or throw-weight in order to distinguish them from existing types.

Although telemetry is not needed to verify compliance with the provisions of New START, to promote transparency and predictability, we negotiated for the exchange of telemetric information on an agreed equal number of launches of intercontinental ballistic missiles and submarine launched ballistic missiles, up to five annually, with the testing party deciding the launches on which it will exchange information. The specifics of the annual telemetry exchanges will be worked out in the treaty's implementation body, the Bilateral Consultative Commission.

Chairman LEVIN. Now, on the negotiating record, there's apparently a history on getting negotiating records, which we also are going to need for the record. This is a matter for the Senate Foreign Relations Committee, but apparently I think it was during the INF Treaty, there was some back and forth between the State Department on whether or not in the future the negotiating record itself would be made available. I think for the record we better get hold of that history, because it would seem, just off the top of my head, why not? Why don't we get the negotiating record? Apparently there's some history as to why not and why there's been refusal before.

There's apparently been precedent for doing it, for giving Congress or the Senate the negotiating record. As Senator McCain said, apparently in 1972 we got the record, and I think he said in 1987 we got the record. But then there was some resistance to getting future negotiating records and some, if not an understanding, clear delineation as to the reasons why the State Department was not in the future going to do it, which applied to subsequent treaties after 1987, I believe.

Even though you're not the State Department, we would need you to get for us either the State Department position on this or the administration position on why don't we get this negotiating record.

Dr. MILLER. Senator, let me just say that that request is pending and the administration will have a response and we will provide something for the record on the history. You are correct that the chilling effect, the concern about the chilling effect, is a key consideration.

Chairman LEVIN. On negotiations?

Dr. MILLER. On future negotiations.

Chairman LEVIN. I don't think we made that request. I think that came from Senate Foreign Relations Committee, is that correct? But if you could just make sure that we get a copy of that.

Dr. MILLER. Yes, sir.

[The information referred to follows:]

When President Obama transmitted the New START treaty to the Senate, the transmittal package included a detailed, article-by-article analysis of the treaty. This analysis is nearly 200 pages long and provides information on every provision of the treaty, protocol, and annexes, including information regarding the U.S. interpretation of the treaty. These materials were prepared in close coordination with the treaty negotiators and provide a detailed explanation ofU.S. rights and obligations under the New START treaty.

Since treaty submission, the negotiation and senior Administration officials have been widely available to answer questions on the treaty and the negotiations. Administration witnesses have testified at nine hearings before three Senate committees—Foreign Relations, Armed Services, and Intelligence. A final hearing is scheduled for July 29 with the two leading members of the negotiating team. Administra-

tion representatives, including members of the negotiating team, have also conducted numerous briefings for Senators and staff.

The Intelligence Community recently submitted a National Intelligence Estimate for the New START treaty; it addresses the challenges of monitoring Russian compliance with the Treaty's obligations. Additionally, the State Department has submitted a report, pursuant to section 306 of the Arms Control and Disarmament Act, on the verifiability of the treaty.

Finally, the executive branch has answered over 500 questions for the record regarding the Treaty. Like the other components of the ratification process, these questions for the record touch on all aspects of the New START treaty.

In sum, the administration has provided a vast amount of information regarding the New START treaty to the committee. We have made every effort to provide the committee with a full understanding of every right and obligation the United States would undertake as a party to the Treaty, were it to enter into force. Indeed, my colleagues from the Intelligence Community, the Joint Chiefs of Staff, the Defense Department, the negotiating team, and I repeatedly testified about the executive branch's consistent understanding of the treaty's terms.

We are committed to answering all of the Senate's questions. If, however, the Administration were to provide the committee with access to the negotiating record as requested, the Administration would be contributing to a precedent that—as noted by Senator Kerry, Chairman of the Senate Foreign Relations Committee, when this issue was raised in his committee—would damage the treaty-making process and erode our constitutional allocation of responsibility.

The longstanding practice in consideration of treaties is that the Senate does not request, and the executive does not provide, the negotiating record. That was the case throughout the 110th Congress, when some 90 treaties were approved by the Senate. That was also the case in the Senate's consideration of other major arms control and security treaties in the past two decades, including the Moscow Treaty in 2002 and 2003, the START I and START II Treaties in the 1990s, and the three instances in the past 12 years when the North Atlantic Treaty Organization was expanded. This practice of reviewing treaties without access to the negotiating record has consistently occurred during both Democratic and Republican majorities in the Senate, and Democratic and Republican administrations.

Chairman LEVIN. I'll just ask one additional question before I call on Senator Nelson, if he will yield for another minute even though his turn has arrived. This has to do with that cut in the budget that the House committee, I believe, the Appropriations Committee, made in your budget, Mr. D'Agostino, the Energy and Water Appropriations Subcommittee.

They reduced the budget by, I believe, $99 million and they offset it in part by using $80 million in prior year balances. First of all, does NNSA have $80 million available in prior year balances? Second, what is the amount of the budget? Third, what is the amount of the increase in the budget over last year? Can you get us those three numbers for the record? If you have them on the top of your head, or give them for the record?

Mr. D'AGOSTINO. I'd be glad to do either one, sir. Just very quickly, and we'll take it for the record as well. The details are important. I haven't yet seen the details of that. We do have some prior year balances. The key on prior year balances—and this is where resources were authorized and appropriated, but because the project wasn't fully ready they're being held until the project is ready. There are a few projects. I don't know if they add up to $80 million, and that's why we need to see the details.

Chairman LEVIN. All right.

Mr. D'AGOSTINO. I'll take the rest of it for the record, sir.

[The information referred to follows:]

The National Nuclear Security Administration has approximately $40 million associated with the Radioactive Liquid Waste Treatment Facility construction project in prior year funds within its weapons activities account, for which plans have been made to redeploy to another high priority project. All other prior year balances are

for goods and services on order, and would have workload impacts if reduced. The request for weapons activities in fiscal year 2011 is $7,008,835. Weapons activities increased $624 million from the fiscal year 2010 appropriation to the fiscal year 2011 request.

Chairman LEVIN. Do you know the total size of your budget request?

Mr. D'AGOSTINO. Oh, yes, sir. It's over $7 billion, and so therefore this $99 million number that keeps floating around at this point is a fairly small percentage. But at this point we did scrub pretty hard to come up with this number. I support the President's budget. We'll need to look at the details on that.

Chairman LEVIN. I expect that you would and should, as a matter of fact. I just want to get the proportion as to what that cut is. What was the dollar increase over last year?

Mr. D'AGOSTINO. $624 million, sir, in this particular account.

Chairman LEVIN. Thank you.

Senator Bill Nelson.

Senator BILL NELSON. Thank you, Mr. Chairman.

Gentlemen, thank you for your service. In the NPR, a whole bunch of warheads in the queue for dismantlement, and that number will increase under the START reductions. What are the most significant challenges to managing this drawdown?

Mr. D'AGOSTINO. I'll take that. The difficult challenge associated with dismantling warheads is in many cases we're talking about warhead systems—I'll call them systems—that have been together for many years, in many cases multiple decades. So what we have to deal with is making sure that we have the safety rules down, clearly understood, so that these warheads can be taken apart safely.

We've done a lot of work at the laboratories and the Pantex plant to get the rules, the procedures, and the tooling and the training all together at the same time so that we can take apart these warheads. Our current commitment on the size of the dismantlement queue that we have right now is to get that work done by the year 2022, which is a significant amount of work.

We recognize that we'll be adding potentially more over the next few years to that queue and we're going to try to hold that date and look for efficiencies. In fact, there are some significant efficiencies because the Pantex plant tends to do better than we had originally expected to getting all that dismantlement work done.

Senator BILL NELSON. So you feel reasonably confident that you have the facilities and the skills in order to handle this reduction?

Mr. D'AGOSTINO. Yes, sir, I do feel confident. I would be remiss if I didn't mention an event that happened not too long ago, frankly, that we're working on right now. There was a significant amount of rain in the State of Texas. We had some fairly significant flooding at our Pantex plant. We're currently in the process of assessing what it will take to recover from that flooding event, and we'll be notifying the appropriate committee staff as we get that information together and work with DOD.

So our goal, of course, is to not have it impact the work that DOD needs. But we're in the middle of that assessment, sir.

Senator BILL NELSON. General Chilton, as you de-MIRV the launchers where they're carrying only one warhead, how does this START enhance the stability of the nuclear balance?

General CHILTON. Senator, first there's an advantage of de-MIRVing the Minuteman system because we can then disperse those warheads, which are limited under the treaty, to other, more survivable platforms, for example, yet at the same time a potential adversary would, if they were thinking about a preemptive strike, have to expend a large number of warheads to address the Minuteman threat, which would still stay in large single-warhead numbers.

Strategic stability, when we talk about that, it's having a posture on both sides that in the worst crisis case, the highest levels of tension, that neither side would be tempted to conduct a first strike as their least best option. So de-MIRVing, if you have 10 warheads in the extreme or even 100 warheads in the extreme on one missile, then you could envision that an opportunity—well, maybe if I strike and eliminate 100 with just 2, that's to my great advantage for a disarming strike.

At the other extreme, if there's just one there, there's more stability. There's less temptation in time of crisis to attempt a first strike, a disarming strike of the adversary.

So this provides, by de-MIRVing, we make it still a very difficult target to attack and one that doesn't make sense to attack.

Senator BILL NELSON. You've described the stability. Then as you go about doing this, what are the challenges in bringing about this change from several warheads down to one?

Mr. D'AGOSTINO. Senator, we're well-practiced at this in our missile fields and I don't see any difficulty in this. It would just be a matter of the work that we would need to accomplish over a scheduled time period. But our crews are trained and able to both conduct uploads and downloads of the configuration of our warheads in the fields today.

Senator BILL NELSON. Mr. Secretary, tell me about how long do you think it's going to take to implement this drawdown?

Dr. MILLER. Senator Nelson, the treaty would have a 7-year implementation period following entry into force, and our intention would be to undertake those reductions spread out over that period.

Senator BILL NELSON. It's a 10-year treaty and in 7 years you're going to be doing the drawdown?

Dr. MILLER. Technically, it doesn't require that much time. But we would expect to spread the work out over a substantial part of that period, and we are currently developing the detailed plans associated with each leg of the triad, the changes that we would be looking for.

Senator BILL NELSON. Do you see any problem in implementing that?

Dr. MILLER. Sir, there's no expected problem in implementing the treaty within the 7 years. If decided, it could be done in less time.

Senator BILL NELSON. Do we think the Russians will do likewise over 7 years?

Dr. MILLER. Sir, I don't have an assessment of that. We believe they'll be able to reach it within the 7-year period certainly. We don't have an assessment of what their plans are in terms of timing.

Senator BILL NELSON. But they have to, under the terms of the treaty, accomplish it by year 7?

Dr. MILLER. Within 7 years after entry into force of the treaty, they would need to meet their limits.

Senator BILL NELSON. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Nelson.

I have no further questions. Thank you very, very much for your testimony.

The hearing is adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR DANIEL K. AKAKA

START VERIFICATION COMPONENTS

1. Senator AKAKA. Dr. Miller, what steps do you plan to take to assure the American people that the parties are in compliance with the terms of the Strategic Arms Reduction Treaty (START)?

Dr. MILLER. Throughout the duration of the New START treaty, the United States will make full use of the treaty's verification provisions—onsite inspections, notifications, and data exchange provisions as well as all available U.S. intelligence means—to include national technical means—in order to monitor Russian compliance with the terms of the treaty. Congress and the American people will be kept informed of any potential issues regarding Russian compliance with the terms of the treaty through the annual arms control compliance report titled "Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments," which is prepared and transmitted by the Department of State (DOS) with coordination from the Department of Defense (DOD), the Department of Energy (DOE), and the Intelligence Community (IC).

2. Senator AKAKA. Dr. Miller, what is your level of confidence in the verification process?

Dr. MILLER. As Secretary Gates has testified, one of the greatest contributions of this treaty is its strong verification regime. I have confidence that the treaty's verification provisions, in particular its onsite inspections, notifications, and data exchange provisions, will increase transparency and confidence in the numbers and status of Russian nuclear forces, without imposing significant burdens on our ability to operate U.S. nuclear forces.

3. Senator AKAKA. Dr. Miller, what are some of the details of verification that will ensure compliance?

Dr. MILLER. Onsite inspections are a linchpin of the treaty's verification framework. The treaty allows each party to conduct up to 18 short-notice onsite inspections each year, with up to 10 Type One inspections conducted at operating bases for intercontinental ballistic missiles (ICBM), strategic nuclear-powered ballistic missile submarines, and nuclear-capable heavy bombers, and up to 8 Type Two inspections conducted at other declared facilities such as storage sites, test ranges, and conversion or elimination facilities where nondeployed systems are located.

Onsite inspections work synergistically with existing National Technical Means of verification as well as other elements of the treaty, including:

- Extensive periodic data exchanges on the technical characteristics, locations, and dispositions of ICBMs, submarine launched ballistic missiles (SLBM), and nuclear-capable heavy bombers;
- Unique identifiers associated with each ballistic missile and heavy bomber; and
- A requirement to report any changes in the status of strategic systems through timely notifications.

By enabling the United States to observe Russia's strategic nuclear forces and related facilities directly, onsite inspections will help the United States verify that Russia is complying with the provisions of the New START treaty. Inspections will also provide a deterrent to cheating. Because the treaty provides for up to 18 inspections per year at declared sites selected by the inspecting party, each side knows that the other will have a significant capability to uncover discrepancies between reported data and what is actually fact. If the United States has concerns or encounters ambiguities during onsite inspections, it will be able to raise these matters

with Russia in the Bilateral Consultative Commission (BCC), which will meet at least twice each year, and pursue these matters at higher levels, if necessary.

START AND THE MISSILE DEFENSE AGENCY

4. Senator AKAKA. Dr. Miller, upon ratification, the proposed treaty could affect many areas within our national security establishment in regards to weapons testing and operations. Would this treaty in any way limit the Missile Defense Agency (MDA) from carrying out future operations and testing? If so, how?

Dr. MILLER. No. The New START treaty does not contain any constraints on the testing, development, or deployment of current or planned U.S. missile defense programs. This includes the Phased Adaptive Approach (PAA) in Europe, the Ground-based Midcourse Defense system, and any planned future missile defenses. The only limits on missile defense in the New START treaty are the provisions in Article V, Paragraph 3, that prohibit the placement of missile defense interceptors in converted ICBM or SLBM launchers and vice versa. However, as Lieutenant General O'Reilly, Director of the MDA, has testified such conversion would be neither cost-effective nor necessary. For example, converting 10 ICBM silos to house ground-based interceptors (GBI) would cost about $550 million, compared to $360 million for building 10 new silos. The placement of midcourse missile defense interceptors in converted SLBM launchers would be operationally impractical and very expensive. Consequently, the Article V limitation on launcher conversion does not constrain U.S. plans or programs.

Under New START we will have greater flexibility in conducting testing with regard to launch locations, telemetry collection and processing, and other aspects of test execution. The favorable changes to the restrictions on target missiles under the New START treaty will allow MDA to use more efficient test architectures and realistic intercept geometries.

CONVENTIONAL PROMPT GLOBAL STRIKE CAPABILITY

5. Senator AKAKA. Dr. Miller, a DOS factsheet dated April 8, 2010, asserted that the New START does not contain any constraints on the current or planned U.S. conventional prompt global strike (CPGS) capability. However, the factsheet also states that "long-range conventional ballistic missiles would count under the treaty's limit of 700 delivery vehicles, and their conventional warheads would count against the limit of 1,550 warheads, because the treaty does not make a distinction between missiles that are armed with conventional weapons and those that are armed with nuclear weapons." From your perspective, does the New START limit the current or planned U.S. CPGS capability? Please explain.

Dr. MILLER. No. The New START treaty protects the U.S. ability to develop and deploy a CPGS capability. Should the United States deploy conventional warheads on treaty-accountable ICBMs or SLBMs, they would count toward the treaty's aggregate deployed warhead limit of 1,550, just as conventional warheads would not have been distinguished from nuclear warheads in terms of accountability under the START treaty. However, the treaty's limit of 700 deployed delivery vehicles combined with the associated ceiling of 1,550 deployed warheads would accommodate any plans the United States might pursue during the life of this treaty to deploy conventional warheads on ballistic missiles. Moreover, the treaty does not prohibit the development, testing, or deployment of potential future long-range weapons systems for CPGS that are currently under development. We would not consider such non-nuclear systems that do not otherwise meet the definitions of the New START treaty to be accountable as "new kinds of strategic offensive arms" for the purposes of the treaty. A study of long-range strike options, including those that would provide CPGS capabilities, is currently underway in DOD and will be completed in time to inform the fiscal year 2012 President's budget.

RECRUITMENT OF NUCLEAR SECURITY PROFESSIONALS

6. Senator AKAKA. Mr. D'Agostino, in your opening statement you declared that one of the priorities for the National Nuclear Security Administration's (NNSA) Nuclear Security Enterprise is to recruit, develop, and retain the next generation of nuclear security professionals responsible for stockpile stewardship. The state of science, technology, engineering, and math (STEM) education in the United States has been subject to some critical assessments in recent years. For example, a 2007 Department of Labor report noted that trends in K–12 and higher education science and math preparation, coupled with demographic and labor supply trends, point to

a serious challenge: our Nation needs to increase the supply and quality of "knowledge workers" whose specialized skills enable them to work productively within the STEM industries and occupations.

How does NNSA plan to fulfill its priority of recruiting, developing, and retaining the next generation of nuclear security professionals given the expected shortages of students and workers with technical backgrounds?

Mr. D'AGOSTINO. Our nuclear security professionals are today, and will be in the future, our greatest asset. They face critical and persistent scientific challenges as they implement our national policy to consider all life extension options to maintain the nuclear weapons stockpile without nuclear testing. I believe that these challenges, combined with a national-level commitment to transform the NNSA nuclear weapons complex into a modern, world-class 21st century Nuclear Security Enterprise that affords unique opportunities for postdoctoral students and summer interns, will provide the environment to attract and retain the best and brightest scientists and engineers available. In addition, defense initiatives beyond stockpile stewardship, such as nuclear forensics and attribution, nonproliferation, and treaty verification activities, provide a broadened mission that will push the envelope of nuclear technology and further challenge and develop our nuclear security professionals.

The management and operations (M&O) contractors at our laboratories and plants will continue to offer opportunities to exercise unique and essential skills in stable programs of national importance to preserve their viability. Developing the next generation of nuclear security professionals is a high priority at all of our sites. The laboratories and plants are making significant human capital investments in order to recruit, retain, and exercise critical skills. However, we must continue to modernize and operate world-class facilities to attract the best students and workers with technical backgrounds to maintain a second-to-none nuclear weapon science, technology, and engineering capability.

In addition to our active efforts to provide unique and challenging opportunities for the nuclear professionals in our laboratories and plants, we are also recruiting, developing, and retaining a Federal workforce to complement the M&O contractor workforce. As an example, one of the NNSA actions to ensure a technical and competent Federal workforce includes the Future Leaders Program. The objective of the Future Leaders Program is to develop competent professionals to ultimately manage programs and projects within our sites.

U.S. DETERRENCE UNDER NEW START

7. Senator AKAKA. General Chilton, the proposed START between the United States and Russia lowers the limits on strategic nuclear warheads and the means to deliver them. It effectively reduces the level of warheads each nation possesses to its lowest level in more than 50 years. Will the United States possess an adequate deterrent in light of the proposed reductions contained in the New START?

General CHILTON. Yes. Under the New START treaty, based on U.S. Strategic Command (STRATCOM) analysis, I assess that the triad of diverse and complementary delivery systems will provide sufficient capabilities to make our deterrent credible and effective.

As the combatant command responsible for executing strategic deterrence operations, planning for nuclear operations, and advocating for nuclear capabilities, we at STRATCOM are keenly aware of how force structure changes can affect deterrence, assurance, and overall strategic stability. Under the New START treaty, the United States will retain the military flexibility necessary to ensure each of these for the period of the treaty.

In support of the New START treaty negotiation effort, STRATCOM analyzed the required nuclear weapons and delivery vehicle force structure and posture to meet current guidance and provided options for consideration by DOD.

This rigorous appraisal, rooted in both deterrence strategy and assessment of potential adversary capabilities, validated both the agreed-upon reductions in the New START treaty and recommendations in the Nuclear Posture Review (NPR).

TELEMETRY AND NEW START

8. Senator AKAKA. General Chilton, there are some differences between the old START which expired in December 2009 and the new START. For example, the new START does not contain restrictions on the location and number of basing areas of land-mobile ICBM systems of various classes. Will the new START change the verification proviqsions from the previous START with regard to telemetry and mon-

itoring of mobile ICBMs? If so, how will it change and will this be a positive change for the United States, the Russian Federation, or both?

General CHILTON. The START treaty had obligations, prohibitions, and limitations that required analysis of telemetric information in order to verify a party was complying with the provisions of the treaty. The START treaty therefore required the exchange of telemetry on all ballistic missile launches. However, in New START, there are no specific obligations, prohibitions, or limitations that require telemetric information to verify compliance. To promote transparency and predictability, New START allows for the exchange of telemetry on a mutual basis on up to five ballistic missile launches per year, selected by the testing party.

The START treaty, negotiated when both Russia and the United States were planning to deploy mobile ICBMs, imposed limits on mobile ICBM deployment areas as a way of monitoring their movements. The New START treaty contains no limits on the size of the deployment area for mobile ICBMs. Provisions of New START—including the information in the comprehensive database on the association of all mobile ICBMs and mobile ICBM launchers with a particular operating base, storage area, or other treaty-accountable facility—require notifications when mobile ICBMs and mobile ICBM launchers change deployed/nondeployed status or are moved to other facilities. The presence of unique identifiers on all ICBMs, in combination with these factors, will further facilitate our ability to monitor the status of Russian mobile ICBMs. I believe these changes will be of benefit to both parties by preserving transparency and predictability.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

NNSA MODERNIZATION

9. Senator MCCAIN. Dr. Miller, Mr. D'Agostino, and General Chilton, as I stated in my opening remarks, the House Appropriations Energy and Water Subcommittee marked up its fiscal year 2011 spending bill and did not fully fund the President's fiscal year 2011 request for the weapons complex. Given the criticality of funding to modernize the weapons complex—which just last month General Chilton stated was not only important but "essential"—is the President committed to ensuring that NNSA receive the full $624 million increase as proposed in his fiscal year 2011 budget? If so, will you recommend that the President veto any appropriation that does not meet his full request for the nuclear weapons complex?

Dr. MILLER. As the 2010 NPR report and the fiscal year 2011 budget request make clear, the President is fully committed to the modernization of the nuclear weapons complex. The administration remains fully committed to full funding for the NNSA in fiscal year 2011 and future years.

Mr. D'AGOSTINO. The President is committed to ensuring the NNSA receives the full $624 million increase in funding for weapons activities as reflected in his budget proposal for fiscal year 2011. The President's fiscal year 2011 budget proposal initiates a multi-year investment plan with substantial budget increases to extend the life of the stockpile, redress shortfalls for stockpile surveillance activities and stockpile certification through investments in the science, technology, and engineering base, and maintain and modernize the supporting infrastructure.

I would not support an appropriation that did not allow the United States to ensure the safety, security, and effectiveness of the U.S. nuclear weapons deterrent, and if asked by the President for my recommendation on this matter, I would advise him accordingly.

General CHILTON. Funding the modernization of the Nation's weapons complex is critical and the President's fiscal year 2011 budget is the essential first step for doing so. As a combatant commander, I strongly support the full fiscal year 2011 appropriation. The fiscal year 2011 President's budget request resulted from close coordination between DOD, DOE, and the administration and represents an important first step in recapitalizing our infrastructure to more effectively sustain our stockpile and manage risk. Long-term strategic system sustainment and infrastructure improvements will require the administration and Congress to work together to fully fund NNSA requirements.

10. Senator MCCAIN. Mr. D'Agostino, in his prepared remarks for our hearing last week, Dr. Michael Anastasio, Director of Los Alamos National Laboratory, stated that he "fear[s] that there is already a gap emerging between expectations and fiscal realities" and that he is "concerned that in the administration's section 1251 report, much of the planned funding increase for weapons activities do not come to fruition until the second half of the 10-year period." Why do you suspect Dr. Anastasio be-

lieves that some of the funding outlined in the 1251 report should be shifted to the first half of the 10-year period?

Mr. D'AGOSTINO. I cannot speculate with regard to Dr. Anastasio's statement. The funding plan identified in the report titled "The New START treaty Framework and Nuclear Force Structure Plans," submitted to Congress pursuant to section 1251 of the National Defense Authorization Act for Fiscal Year 2010 (the 1251 report), builds from analysis completed for the fiscal years 2011–2015 Future Years Nuclear Security Program (FYNSP), which was shaped by the NNSA's assessment of the ability of the Nuclear Security Enterprise to efficiently ramp-up within the constraints of time, capacity, and capability to spend increased funds to redress mission shortfalls.

As part of the budget development process, I invited the Integration Council to offer its insights and analysis, unfettered by any ceiling or constraint. Program managers were tasked with a different assignment that focused on executability. My leadership team and I then worked through all the competing priorities to offer a budget proposal to Secretary Chu that balanced needs and priorities against the ability to execute a spending profile, which the Office of Management and Budget and the President supported. The resulting budget request is more conservative in the first 2 years of the FYNSP, based on this approach. But an equally important consideration is that we will not have a validated baseline for four major projects called for by the NPR and the President. These are the B61 and W78 life extension programs (LEP) and the two material processing facilities: the Chemistry and Metallurgy Research Replacement (CMRR) Nuclear Facility and the Uranium Processing Facility (UPF). These baselines may drive a different out-year view of requirements. The funding requirements identified to date represent the most complete view of needs until these projects reach validation.

FORCE STRUCTURE UNDER NEW START

11. Senator MCCAIN. General Chilton, the 1251 report outlined a "baseline nuclear force structure" which specifies retaining up to 420 deployed ICBMs, a cut of at least 30 silos; up to 60 nuclear-capable bombers, a reduction of 34; and all of the current 14 ballistic missile submarines (SSBN), with no more than 240 SLBMs deployed at any time. Given the provided ranges account for 720 delivery vehicles, 20 above the deployed limit under the New START, when does DOD intend to provide the Senate with its final force structure?

General CHILTON. Let me begin by stating the force structure construct as reported in the section 1251 report is sufficient to meet the Nation's strategic deterrence mission. Furthermore, the New START treaty provides flexibility to manage the force drawdown while maintaining an effective and safe strategic deterrent. DOD is working to determine force structure concepts of operations and provide recommendations that meet national strategic requirements and New START treaty central limits, which we do not have to meet until 7 years after the treaty's entry into force. STRATCOM is engaged with Office of the Secretary of Defense, the military departments, and interagency partners to develop implementation plans that will address guidance received and sustain operational flexibility.

12. Senator MCCAIN. General Chilton, have you yet estimated how the Russians will configure their strategic forces under the New START?

General CHILTON. This topic is addressed in the National Intelligence Estimate (NIE) on monitoring the New START treaty, which was provided to the Senate on June 30, 2010.

13. Senator MCCAIN. General Chilton, have you also conducted a net assessment to determine if the United States can carry out its deterrence mission under a likely mixed Russian strategic and tactical nuclear weapons force structure? If so, please provide details.

General CHILTON. The New START treaty's lower strategic force levels are based on force analyses conducted during the NPR. Among other things, these analyses considered:

- The ability to meet current policy guidance;
- Deterrence and extended deterrence;
- Assurance of friends and allies;
- The need to hedge against possible technical and geopolitical developments through changes in U.S. force posture and structure both within and outside treaty limits; and

• The nuclear arsenals of other declared nuclear weapon states, as well as the nuclear programs of proliferant states.

The conclusion of the NPR analyses was that stable deterrence could be maintained at lower strategic force levels, including those eventually agreed to in the New START treaty.

Regarding tactical nuclear weapons, the vast majority of tactical nuclear weapons do not directly influence the strategic nuclear balance between the United States and Russia because of their limited range and different roles. Although numerical asymmetry in tactical nuclear weapons exists, when considered within the context of our total capability, and given the force levels as structured in the New START treaty, we assess that our strategic deterrent will be effective in the future.

Further, within the regional context, in order to support extended deterrence and power projection, the United States possesses many diverse capabilities, including strategic and tactical nuclear weapons, superior conventional forces, ballistic missile defenses, and advanced technologies. We also benefit from significant allied nuclear and conventional capabilities. As President Obama stated in Prague last year, we are committed to maintaining a safe, secure, and effective nuclear arsenal to deter any adversary and guarantee that defense to our allies.

START AND MISSILE DEFENSE

14. Senator MCCAIN. Dr. Miller, irrespective of threats from the Russians to withdraw from the treaty, is this administration committed to funding, developing, and deploying all elements of the PAA for missile defense in Europe as well as implementing the strategy as portrayed in the Ballistic Missile Defense Review (BMDR)?

Dr. MILLER. Yes. As outlined during the announcement of the PAA to missile defense in Europe last September and in the 2010 Report of the BMDR, while further advances in technology or future changes in the threat could modify the details or timing of later phases, we plan to deploy all four phases of the PAA in Europe, including Phase Four.

DUAL-CAPABLE F–35

15. Senator MCCAIN. General Chilton, the development of the dual-capable, nuclear and conventional, variant of the F–35 to replace aging dual-capable F–16s is a primary driver for the B–61's 2017 deadline. How critical is the timely delivery of the dual-capable F–35 to the extended deterrence mission?

General CHILTON. Let me begin by clarifying that the B–61 LEP is not dependent on either F–16 Service Life Extension or F–35 development. The B–61 LEP is required to replace aging components in the strategic and tactical variants of that weapon. Additionally, the B–61 LEP will ensure the weapon is compatible with both aircraft. The NPR makes a clear commitment to retain the capability to forward-deploy U.S. nuclear weapons on tactical fighter-bombers and proceed with a full scope life extension for the B–61. Both are key components of a broader strategy to accomplish U.S. non-proliferation and deterrence goals.

16. Senator MCCAIN. General Chilton, how confident are you that it will be available as scheduled in 2017?

General CHILTON. Based on the recent F–35 program restructure and Nunn-McCurdy breach, a new program baseline is currently in work and those results will help inform the Air Force regarding any possible effects on the Dual Capable Aircraft timeline. Whatever the effects on the Dual Capable Aircraft timeline, I support the maintenance of the Dual Capable Aircraft mission until the F–35 is fully capable of performing it.

PROMPT GLOBAL STRIKE

17. Senator MCCAIN. General Chilton, while the treaty does not prohibit the development and deployment of long-range conventional strike capabilities, it does stipulate that conventional warheads placed on ICBMs or SLBMs will be counted under the overall strategic nuclear warhead ceiling. How will this tradeoff affect the development and the deployment of our future prompt global strike (PGS) capability?

General CHILTON. NPR analysis concluded that New START treaty strategic delivery vehicle and strategic warhead limits allowed retention of a margin above the minimum required nuclear force structure for the possible addition of non-nuclear

PGS capabilities (conventionally-armed ICBMs or SLBMs) that would be accountable under the treaty. Additional decisions will be required to determine the U.S. force structure composition under the limit of 700 deployed ICBMs, SLBMs, and heavy bombers under the New START treaty. The final decisions will be made during the 7 years of implementation before the limit takes effect. During that period, DOD will continue modernization, sustainment, and operation of U.S. nuclear forces.

Whether deployment of PGS would require additional adjustment in the number of U.S. deployed ICBMs and SLBMs will be a function of the type of PGS system developed and deployed, because some PGS systems under consideration for deployment would not count against the New START limits. Given this uncertainty, it is premature to speculate on where possible reductions of other strategic systems may come from, or whether further reductions will even be necessary. The number of such conventionally-armed delivery vehicles and the warheads they carry would be very small when measured against the overall levels of strategic delivery systems and strategic warheads. Should we decide to deploy them, counting this small number of conventional strategic systems and their warheads toward the treaty limits will not prevent the United States from maintaining a robust, fully adequate nuclear deterrent.

B–61 REPROGRAMMING

18. Senator McCain. Mr. D'Agostino, DOE recently submitted a request to reprogram $53 million of the NNSA fiscal year 2010 appropriated budget to support urgent funding for the B–61 LEP study. How critical is the timely approval of this reprogramming request?

Mr. D'Agostino. The reprogramming is essential for the NNSA to complete the design definition and cost study in 2011 and meet DOD's first production unit requirement of 2017. The funds provide critical resources to ramp up design agency and production technical staff and continue maturation of technologies, including enhanced surety concepts.

19. Senator McCain. Mr. D'Agostino, what would the consequences of denying such a request have on meeting the critical 2017 deadline?

Mr. D'Agostino. The NNSA was pleased to receive approval for the reprogramming. The program is committed to meet the challenging schedule of a fiscal year 2017 first production unit.

20. Senator McCain. Mr. D'Agostino, is the fiscal year 2011 and the future years budget plan sufficient to support the fiscal year 2017 delivery of the B–61 and to maintain the W–76 schedule?

Mr. D'Agostino. The budget for fiscal year 2011 is sufficient for the B61. The fiscal year 2011 budget request of $252 million provides the needed funds to complete the design definition and cost study and develop technologies in fiscal year 2011 to support the fiscal year 2017 first production unit. The Phase 6.2A cost study will develop budget quality estimates for fiscal year 2012 and beyond. The NNSA will document these in the Weapon Data Cost Report. Current estimates in the fiscal years 2011–2015 FYNSP are based on analysis of previous LEPs and will be updated, as needed, once the B61 study is completed and Phase 6.3 is authorized.

The W76 budget is sufficient to meet the planned production rate. If implementation of the NPR changes the planned annual production requirement, NNSA will rebaseline the program and update the budget request.

21. Senator McCain. Mr. D'Agostino, is there any likelihood of the B–61 production slipping as a result of budget issues in fiscal years 2010–2012?

Mr. D'Agostino. The risks to the fiscal year 2017 schedule for the first production unit (FPU) will be determined as part of the B61 study. FPU risks are dependent on the detailed schedules associated with development and production engineering and will be affected by the down-selection of technologies, including decisions to implement enhanced surety technologies.

VERIFYING THE WARHEAD LIMIT

22. Senator McCain. Dr. Miller and General Chilton, under the treaty, any missile can carry any number of warheads, as long as the total does not exceed 1,550, but it's unclear as to how we will verify this number. Warhead loadings are unobservable with national technical means and the treaty's onsite inspection meas-

ure simply tells us how many warheads a missile has at a particular base. If, for example, we learn during one of these inspections that a missile the Russians said was loaded with 3 warheads is now loaded with 6, how does that help us find out if the Russians exceeded the overall 1,550 limit?

Dr. MILLER. [Deleted.]

General CHILTON. The New START treaty's annual quota of 10 Type One inspections will allow the United States to confirm the accuracy of declared data on the numbers of warheads emplaced on designated, deployed ICBMs and SLBMs. As part of a multi-faceted verification regime which includes comprehensive data exchanges, notifications, unique identifiers, and non-interference with National Technical Means, these onsite inspections will help to confirm compliance with the Article II central limit of 1,550 warheads on deployed ICBMs, deployed SLBMs, and nuclear warheads counted for deployed heavy bombers.

A classified answer will be provided separately. Additional information on this issue is also contained in the July 30, 2010 letter to you from Secretary Gates and the New START NIE on monitoring the New START treaty, published on June 30, 2010.

23. Senator MCCAIN. Dr. Miller and General Chilton, is there any scenario that could lead the United States to conclude unequivocally from these inspections that the Russians are in violation of the treaty's 1,550 limit?

Dr. MILLER and General CHILTON. Although monitoring all reentry vehicles emplaced on deployed ICBMS and SLBMs will be difficult under the New START treaty, most large-scale breakout scenarios would likely involve activity that could be observable over time. In assessing Russian compliance with the New START treaty, the United States would use not only onsite inspections, but also data exchanges, notifications, and national technical means of verification.

Information on this issue at the classified level is contained in the July 30, 2010 letter to you from Secretary Gates, and in the New START treaty NIE, published on June 30, 2010.

24. Senator MCCAIN. Dr. Miller and General Chilton, what tactics or excuses can the Russians use to keep our inspectors away from missiles whose warheads they do not want us to see?

Dr. MILLER and General CHILTON. [Deleted.]

QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

DELIVERY SYSTEM MODERNIZATION

25. Senator INHOFE. General Chilton, press reports indicate that the administration will invest $100 billion over the next decade in nuclear delivery systems. About $30 billion of this total will go toward development and acquisition of a new strategic submarine. Of the remaining $70 billion, STRATCOM estimates that the cost of maintaining our current nuclear forces is approximately $56 billion over this period.

This leaves roughly $14 billion for:

- Next generation bomber
- Follow-on ICBM
- Follow-on nuclear air-launched cruise missile (ALCM)
- Conventional PGS capability

In fact, the 1251 modernization report does not even make a commitment to go forward with these delivery systems. Is $100 billion a sufficient investment in our nuclear delivery systems over the next decade?

General CHILTON. The section 1251 report, "New START Framework and Nuclear Force Structure Plans," provided to Congress, which is the basis for the estimate of $100 billion costs over 10 years for delivery systems, included costs for which there are currently programs of record. As stated in the one-page, unclassified summary of the section 1251 report, the administration intends to invest well over $100 billion in modernizing strategic delivery systems. DOD is currently conducting an analysis of alternatives (AoA) for a possible follow-on ALCM, and is assessing future heavy bomber requirements in a study of long-range strike capabilities that will be completed in fall 2010. In addition, the Air Force is initiating a study of future ICBM concepts and requirements. As these studies are completed, and subsequent decisions taken, the estimate for costs of strategic delivery systems in the next decade will likely change.

26. Senator INHOFE. General Chilton, what assurances can you provide that the administration is committed to modernizing the above programs?

General CHILTON. The President's budget provides funding to address our Nation's most critical needs to update and modernize our deterrent and global strike capabilities. It represents a 10 percent increase in fiscal year 2011 over fiscal year 2010. As for STRATCOM, our intent is to continue to advocate for the necessary capabilities to support strategic deterrence. It is clear that a long-term commitment, reflected in consecutive budget submissions and sustained congressional support, will be required.

27. Senator INHOFE. General Chilton, why aren't they addressed in the 1251 report?

General CHILTON. The estimates in the section 1251 report include programs planned for fiscal years 2011–2015, and the administration's current best estimate of fiscal years 2016–2020 costs. As some programs are yet to be fully defined, such as the Minuteman III ICBM follow-on, the ALCM follow-on, and the follow-on bomber, their costs across the entire period are not included because they are not yet known. As specific decisions are made regarding these systems, the necessary funding will be requested in future DOD budget requests.

TACTICAL NUCLEAR WEAPONS

28. Senator INHOFE. General Chilton, the Strategic Posture Commission Report indicates a disparity of 3,800 Russian tactical nuclear weapons versus less than 500 for the United States. What are your thoughts on how the United States will engage Russia on its overwhelming number of tactical nuclear weapons?

General CHILTON. The vast majority of tactical nuclear weapons do not directly influence the strategic nuclear balance between the United States and Russia because of their limited range and different roles. Although numerical asymmetry in tactical nuclear weapons exists, when considered within the context of our total capability, and given the force levels as structured in the New START treaty, we assess that our strategic deterrent will be effective in the future. The force structure we will retain under the New START treaty will preserve our capability to upload our strategic nuclear delivery systems if necessary. Further, within the regional context, in order to support extended deterrence and power projection, the United States possesses many diverse capabilities including strategic and tactical nuclear weapons, superior conventional forces, ballistic missile defenses and other advanced capabilities. We also benefit from significant allied nuclear and conventional capabilities.

The Perry-Schlesinger Congressional Strategic Posture Commission recommended deferring negotiations on tactical nuclear weapons until after a treaty successor agreement to the START treaty had been concluded. Additionally, pursuant to the 2010 NPR, and as the President reiterated at the signing of the New START treaty, the United States intends to engage Russia regarding broader reductions in strategic and tactical nuclear armaments, including nondeployed weapons. The number and role of tactical nuclear weapons in the Russian nuclear arsenal warrant addressing them in future discussions.

29. Senator INHOFE. Dr. Miller, what impact will this disparity have on allied views of the U.S. nuclear umbrella?

Dr. MILLER. Because of their limited range and different roles, tactical nuclear weapons do not directly influence the strategic balance between the United States and Russia. Furthermore, within the regional context, the United States relies on additional capabilities to support extended deterrence and power projection, including conventional force capabilities, ballistic missile defenses, allied capabilities, advanced technologies, and modernization and maintenance of existing forces, to name a few. As President Obama stated in Prague last year, we are committed to maintaining a safe, secure, and effective nuclear arsenal to deter any adversary and guarantee that defense to our allies. During the NPR consultations, our NATO allies were engaged on the issue of extended deterrence and were assured of our continued commitment to their defense. Allies have welcomed the outcome of the NPR, as well as the signing of the New START treaty.

30. Senator INHOFE. Dr. Miller, what leverage do we have to address this disparity in the future, and why didn't we make this an objective for this agreement?

Dr. MILLER. A more ambitious treaty—one that addressed tactical nuclear weapons or additional nuclear weapons states—would have taken much longer to com-

plete, adding significantly to the time before a successor agreement, including verification measures, could enter into force following START's expiration in December 2009. Following ratification and entry into force of the New START treaty, we intend to pursue further negotiations with Russia on measures to reduce both strategic and tactical nuclear weapons, including nondeployed nuclear weapons.

Leverage for future negotiations will come from several directions. The Russians are concerned with the totality of the U.S. nuclear stockpile, particularly the upload capability of our strategic ballistic missiles, as well as U.S. tactical nuclear weapons forward-deployed in NATO countries. Also, Article VI of the Nuclear Nonproliferation Treaty (NPT) stipulates that nuclear weapons states are to work toward achieving nuclear disarmament. The Russians want to be seen favorably as working toward this goal. President Medvedev has expressed interest in further discussions on measures to further reduce both nations' nuclear arsenals. As stated in the April 2010 NPR and by the President at the signing of the New START treaty in Prague, we intend to raise strategic and tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions.

31. Senator INHOFE. Dr. Miller, what would the United States use to negotiate another arms control agreement with Russia to get them to agree to reduce their thousands and thousands of tactical nuclear weapons?

Dr. MILLER. The New START treaty sets the stage for further negotiations with Russia on measures to reduce both strategic and tactical nuclear weapons, including nondeployed nuclear weapons. President Medvedev has expressed interest in further discussions on measures to further reduce both nations' nuclear arsenals. We intend to raise strategic and tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions.

While it is premature at this stage to discuss what our negotiating strategy might be, leverage for future negotiations will come from several directions. The Russians are concerned with the totality of the U.S. nuclear stockpile, particularly the upload capability of our strategic ballistic missiles, as well as U.S. tactical nuclear weapons forward-deployed in NATO countries. Also, Article VI of the NPT stipulates that nuclear weapons states are to work toward achieving nuclear disarmament. The Russians want to be seen as favorably working towards this goal.

NUCLEAR WARHEAD LEVELS

32. Senator INHOFE. General Chilton, during his nomination hearing on July 9, 2009, General Cartwright expressed the view that he "would be very concerned" if we got below 800 deployed delivery vehicles. The New START establishes a level of 700 deployed strategic delivery vehicles. Are you concerned that this number is 100 below General Cartwright's comfort level?

General CHILTON. No, I am not concerned. The decision to agree to a limit of 700 deployed strategic delivery vehicles resulted from an updated assessment of U.S. force deployment options in the light of different counting rules under New START. General Cartwright's statement was made in the context of the previous START treaty's counting rules; subsequently, New START provisions were agreed. These include an agreement not to count nondeployed ICBMs and SLBMs as part of the central limit on delivery vehicles, not to count converted individual SLBM launchers on strategic submarines, and not to count bombers that have been converted to conventional-only missions. Because of these provisions, under the 700 limit of the New START treaty, the United States will be able to retain all 14 SSBNs, while reducing the number of deployed SLBM launchers by 96 (from 336 to 240). In addition, the United States will convert a subset of the B–52H bombers to a conventional-only role, so that they are no longer accountable under the treaty.

In sum, the treaty's limits of 700 deployed strategic delivery vehicles will support strategic stability by allowing the United States to retain a robust triad of strategic delivery systems.

33. Senator INHOFE. General Chilton, are you concerned that at lower levels the military will not be able to carry out its deterrence missions?

General CHILTON. No. I am confident that the military will maintain a reliable and effective deterrent.

The New START treaty's lower strategic force levels are based on force analyses conducted during the NPR. Among other things, these analyses considered:

- The ability to meet current policy guidance;
- Deterrence and extended deterrence;
- Assurance of friends and allies;

- The need to hedge against both technical and geopolitical developments; and
- The nuclear arsenals of other declared nuclear weapon states, as well as the nuclear programs of proliferant states.

The conclusion of the NPR analyses was that stable deterrence could be maintained at lower strategic force levels.

Throughout the NPR process and during New START treaty negotiations, STRATCOM played important analytical and advisory roles. As the combatant command responsible for strategic deterrence planning, advocating for related capabilities, and executing operations at the President's direction, no other military organization has the necessary analytical skills and expertise to advise the Secretary of Defense fully on these matters. Our team analyzed nuclear weapons and delivery vehicle force structure options and postures necessary to meet the current guidance. STRATCOM's involvement in and support to the NPR was both thorough and continuous.

The breadth and depth of our analysis, evaluations, and involvement in the treaty-making process give me confidence that the result will not constrain the ability of the United States to continue to deter potential adversaries, assure our allies, and sustain strategic stability.

34. Senator INHOFE. General Chilton, are you concerned about the survivability of U.S. forces at lower levels—certainly, the implications of cheating become more profound?

General CHILTON. No.

Russia would not be able to undermine the strategic balance between the United States and Russia because a portion of the U.S. ballistic missile submarine force is always at sea at any given time, and capable of launching Trident II SLBMs. These highly survivable submarines and the weapons they carry provide survivable, credible assurance of the abilities of the United States to execute a response to an attack on the U.S. or our interests.

Further, when considering the utility of a hypothetical breakout and potentially disarming first strike, Russia will be able to have significant confidence that the United States has retained a highly responsive force of up to 420 single warhead Minuteman III ICBMs deployed in hardened silos. Russian consideration of such a strike would always have to factor in the ability of the U.S. President to decide to launch those ICBMs while under attack, a decision that would enable a large portion of the ICBM force to deliver their warheads to Russian targets. Our analysis has clearly demonstrated that additional Russian warheads, even significantly above the treaty limits, would do nothing to threaten the survivability of U.S. ballistic missile submarines at sea or bombers when on alert. Nor would they guarantee the destruction of all U.S. land-based ICBMs.

In summary, additional Russian warheads above the New START limits would have little to no effect on the U.S. assured and survivable second-strike capabilities that underwrite our strategic deterrence posture.

35. Senator INHOFE. General Chilton, are you concerned that other countries may view lower U.S. force levels as an opportunity to gain parity with the United States in nuclear capability?

General CHILTON. No.

The only nation that could potentially compete with the United States or Russia in nuclear weapons is the People's Republic of China. The New START limits will permit the United States to maintain forces well above China's. Chinese spokesmen have stated that China does not seek to attain numerical parity with Russia or the United States, and its nuclear arsenal remains much smaller than U.S. and Russian arsenals. As a declared nuclear weapon state under the NPT, China's restraint in its nuclear modernization is important to nuclear disarmament and global nonproliferation efforts. We look to China to be more transparent about its strategic programs and to show restraint in them.

36. Senator INHOFE. General Chilton, are you concerned that at lower levels of U.S. forces, our allies may come to doubt the credibility of U.S. nuclear security guarantees—especially if the Russians maintain large numbers of tactical nuclear weapons?

General CHILTON. The New START treaty's lower strategic force levels are based on force analyses conducted during the NPR. Among other things, these analyses considered:

- The ability to meet current policy guidance;

- Deterrence and extended deterrence;
- Assurance of friends and allies;
- The need to hedge against both technical and geopolitical developments; and
- The nuclear arsenals of other declared nuclear weapon states, as well as the nuclear programs of proliferant states.

The conclusion of the NPR analyses was that stable deterrence could be maintained at lower strategic force levels.

As part of the NPR consultations, our NATO allies were engaged on the issue of extended deterrence and were assured of our continued commitment to their defense. U.S. allies have welcomed the outcome of the NPR, as well as the signing of the New START treaty. In fact, their response to the New START treaty has been overwhelmingly positive. NATO Secretary General Anders Fogh Rasmussen himself welcomed the agreement as an important contribution to arms control and an inspiration for further progress.

MODERNIZATION FUNDING

37. Senator INHOFE. Mr. D'Agostino, in your written testimony you state that the President's fiscal year 2011 budget request is "exactly right." The administration has requested a $10 billion increase over 10 years for modernization. Yet the CMRR Nuclear Facility in New Mexico and the UPF in Tennessee nuclear material facilities will likely cost more than $7 billion by the time they are complete. This leaves $3 billion to conduct three warhead overhauls and restore stockpile stewardship and stockpile surveillance. Is this amount really sufficient?

Mr. D'AGOSTINO. The funding identified in the President's budget request for the NNSA fiscal years 2011–2015 FYNSP represents my and the administration's assessment of what is required over the next decade. This includes significant funding increases, which start at $624 million in fiscal year 2011 and increase to $1.64 billion in fiscal year 2015, and sustained investments at these higher levels such that over the next decade the United States will have invested $80 billion in the Nuclear Security Enterprise. This will support required maintenance and surveillance activities, investments in science, technology, and engineering, modernization of physical infrastructure, and essential investment in human capital. It will also support specific critical activities, including: design and initial construction of the CMRR Nuclear Facility; design and initial construction of the UPF; creation of a sustainable plutonium pit manufacturing capacity at the PF–4 facility; completion of the LEP for the W76 warhead and the B61 bomb; and beginning LEP studies to explore the path forward for the W78 ICBM and the W88 SLBM systems.

But an equally important consideration is that we do not have a validated baseline for four major projects called for by the NPR and the President: the B61 and W78 LEPs, the CMRR Nuclear Facility, and the UPF. These baselines may drive a different out-year view of requirements. The funding requirements identified to date represent the most complete view of needs until these projects reach validation. Out-year requirements will be adjusted if necessary as baselines for these activities are validated.

38. Senator INHOFE. Mr. D'Agostino, since 70 percent of these funds will not show up until 2016, what near-term risk do you foresee in this budget plan?

Mr. D'AGOSTINO. The funding increases identified in the President's budget request for the NNSA fiscal years 2011–2015 FYNSP, which start at $624 million in fiscal year 2011, ramp up to $1.64 billion in fiscal year 2015, and then continue at the higher levels in the out-years, will support required maintenance and surveillance activities, investments in science, technology, and engineering, modernization of physical infrastructure, and essential investment in human capital. The progressive funding profile supports all identified programmatic requirements and represents a manageable and executable investment in NNSA's national security mission.

39. Senator INHOFE. Mr. D'Agostino, you also state that one of your priorities is to "strengthen the science, technology, and engineering base," yet most of these funds are clearly for facility improvements. Additionally, during the hearing with the lab directors last week, the committee heard that 37 percent of the experienced technical staff in the weapons system and component design at the Sandia lab are over the age of 55. This concerns me. How are we going to retain this expert workforce?

Mr. D'AGOSTINO. This is an important issue that the NNSA will continue to monitor. We are adding additional investments into our science, technology, and engineering base. The NNSA will ensure the right skill mix is maintained for the future within the Federal and contractor workforce to accomplish its mission by attracting and retaining the top national talent and expertise to provide key nuclear weapon scientific understanding. Actions that NNSA is taking include promoting cross-training of critical skills and knowledge management/transfer for mission critical skills. I believe that challenging work, combined with a national-level commitment to transform the NNSA nuclear weapons complex into a modern, world-class 21st century Nuclear Security Enterprise, will provide the environment to attract and retain the best and brightest scientists and engineers available. This national-level commitment was made evident by the administration's NPR and the fiscal year 2011 budget request for the NNSA. In addition, defense initiatives beyond stockpile stewardship, such as nuclear forensics and attribution, and treaty verification activities, provide a broadened mission that will push the envelope of nuclear technology and further challenge and develop our nuclear security professionals.

40. Senator INHOFE. Mr. D'Agostino, can critical nuclear weapons design skills, including plutonium pit design and production, be preserved solely through reuse or refurbishment as the administration's NPR policy suggests?

Mr. D'AGOSTINO. The United States has made the decision not to design and produce new warheads; however, we will preserve our critical nuclear weapon design skills. The capabilities needed to design a new warhead include knowledgeable designers, along with a responsive, capable research and development and manufacturing infrastructure. These are the same capabilities and skill sets utilized when completing weapon life extensions. Instead of honing and demonstrating these skills through an ongoing program to design, develop, and test new nuclear weapon designs, such as was done during the Cold War, the NNSA is strengthening our science, technology, and engineering capabilities to sustain these core skills.

41. Senator INHOFE. Mr. D'Agostino, do you have confidence that in 25 years from now, we will understand every skill required to manufacture a new nuclear warhead, if the Nation requires one?

Mr. D'AGOSTINO. Yes. The United States has made the decision not to design and produce new warheads; however, we will preserve our critical nuclear weapon design skills. The capabilities needed to design a new warhead include knowledgeable designers, along with a responsive, capable research and development and manufacturing infrastructure. These are the same capabilities and skill sets utilized when completing weapon life extensions. The investments of this administration provide the necessary skill sets and infrastructure that will ensure that future technical competencies and capabilities are in place to support nuclear deterrence.

VERIFICATION REGIME

42. Senator INHOFE. General Chilton, you state in your prepared testimony that "New START will reestablish a strategic nuclear arms control verification regime that provides intrusive access to Russian nuclear forces and a measure of predictability in Russian force deployments over the life of the treaty." However, the New START verification regime is clearly less stringent than that found in the expired START I. For example, there are fewer onsite inspections, a weakening of telemetry exchange provisions, and no longer any continuous monitoring of missile production facilities. Is the verification in the treaty adequate to give us the same understanding of new Russian systems as we have of current Russia systems thanks to START I?

General CHILTON. The New START treaty verification regime is designed to verify each party's compliance with the provisions of the treaty just as the START treaty's verification regime was designed to verify compliance with that treaty's provisions. Because the New START treaty's provisions differ from those of the START treaty, the New START treaty requires a different set of verification measures. The number of inspections permitted in the START treaty and the New START treaty is not a simple "apples to apples" comparison. For example, although the New START treaty allows fewer inspections, its Type One inspections at ICBM and SSBN bases combine the key attributes of the START treaty's reentry vehicle onsite inspections and data update inspections. Additionally, the number of facilities for which Russia provided site diagrams and which will therefore be inspectable under the New START treaty (35) is significantly lower than the number confiscatable facilities in the former Soviet Union when the START treaty entered into force (70). This is due to

the fact that Belarus, Kazakhstan, and Ukraine no longer have strategic offensive arms and therefore are not parties to the New START treaty, as well as that Russia now has fewer facilities where strategic offensive arms are located than it had when START entered into force.

According to the document titled "New START Treaty—The Determination Pertaining to Verification," dated July 12, 2010, prepared in accordance with Section 306 of the Arms Control and Disarmament Act, the administration concluded that the combination of improved U.S. understanding of Russian strategic forces resulting from the implementation of the START treaty, U.S. NTM capabilities, the New START treaty's verification provisions, and a favorable posture for deterring cheating or breakout, results in a New START treaty that is effectively verifiable. Finally, the New START treaty's verification regime will provide far more insight into Russian strategic nuclear forces than having no onsite inspection access at all, which is currently the case.

With regard to telemetry exchange provisions, the START treaty had obligations, prohibitions, and limitations that required analysis of telemetric information in order to verify a party was complying with the provisions of the treaty. The START treaty therefore required the exchange of telemetry on all ballistic missile launches. However in New START, there are no specific obligations, prohibitions, or limitations that require telemetric information to verify compliance. To promote transparency and predictability, New START allows for the exchange of telemetry on up to five ballistic missile launches per year.

43. Senator INHOFE. General Chilton, how important is it that we get telemetry of new Russian missile tests in order to understand the capabilities of those systems?

General CHILTON. Please see the NIE on Monitoring the New START Treaty, which was provided to the Senate on June 30, 2010.

44. Senator INHOFE. General Chilton, don't we need better verification at lower force levels than we needed at higher force levels?

General CHILTON. Regardless of the specific force levels, the key criterion in evaluating whether the New START treaty is effectively verifiable is whether the United States would be able to detect, and respond to, any attempt by the Russian Federation to move beyond the limits of the treaty in a way that has military significance, before such an attempt became a threat to U.S. national security. The military significance of a cheating scenario depends upon its impact on the military capability of the parties and its impact on strategic stability. The key to strategic stability is that each side possesses strategic nuclear forces able to execute a devastating second strike under any war initiation scenario.

After conducting a thorough analysis, we have concluded that Russia will not be able to achieve militarily significant advantage by cheating or breakout under New START, principally because of the inherent survivability of the planned U.S. strategic force structure-specifically, our *Ohio*-class ballistic missile submarines, a number of which are at sea at any given time.

Further, when considering the utility of a breakout and potentially disarming first strike, Russia will know with certainty that the United States has retained a highly responsive force of up to 420 single warhead Minuteman III ICBMs deployed in hardened silos. Russian consideration of such a strike would always have to factor in the ability of the U.S. President to decide to launch those ICBMs while under Russian attack, a decision that would enable a large portion of the ICBM force to deliver their warheads to Russian targets. The Russian President would almost certainly understand that no matter how many warheads Russia launches in an attempt to destroy the U.S. ICBMs, the United States would possess the ability to negate the effectiveness of a first strike by launching before the Russian warheads reached the ICBMs in their silos.

Therefore, additional Russian warheads above the New START limits would have little to no effect on the U.S. assured second-strike capabilities that underwrite our strategic deterrence posture.

However, if Russia were to attempt to gain political advantage by cheating or breakout, the United States would be able to rapidly respond by increasing the alert levels of SSBNs and bombers, and by uploading warheads on SSBNs and ICBMs. This would offset any conceivable political benefits the Russians may believe they would gain through temporary numerical advantage.

45. Senator INHOFE. General Chilton, do you agree with the statement that any cheating by the Russians will have little, if any, impact on our second-strike capability?

General CHILTON. Yes. Russia will not be able to achieve militarily significant advantage by cheating or breakout under New START, due to the inherent survivability of the planned U.S. strategic force structure.

To undermine the strategic balance, Russia would need to develop the means to prevent U.S. *Ohio*-class ballistic missile submarines, a number of which are at sea at any given time, from being able to deliver their Trident II SLBMs. These highly survivable submarines and the weapons they carry guarantee the ability of the United States to execute a response with hundreds of nuclear warheads. Further, when considering the utility of a breakout and potentially disarming first strike, Russia will know with certainty that the United States has retained a highly responsive force of up to 420 single warhead Minuteman III ICBMs deployed in hardened silos. Russian consideration of such a strike would always have to factor in the ability of the U.S. President to decide to launch those ICBMs while under Russian attack, a decision that would enable a large portion of the ICBM force to deliver their warheads to Russian targets. The Russian President would almost certainly understand that no matter how many warheads Russia launches in an attempt to destroy the U.S. ICBMs, the United States would possess the ability to negate the effectiveness of such a strike by launching before the Russian warheads reached the ICBMs in their silos.

Therefore, additional Russian warheads above the New START limits would have little to no effect on the U.S. assured second-strike capabilities that underwrite our strategic deterrence posture.

However, if Russia were to attempt to gain political advantage by cheating or breakout, the United States will be able to rapidly respond by increasing the alert levels of both SSBNs and bombers, and by uploading warheads on SSBNs and ICBMs. This would offset any conceivable political benefits the Russians may believe they would gain through temporary numerical advantage.

46. Senator INHOFE. General Chilton, doesn't detecting cheating, i.e. strong verification, become more important at the lower levels imposed by the New START?

General CHILTON. Regardless of the specific force levels, the key criterion in evaluating whether the New START treaty is effectively verifiable is whether the United States would be able to detect, and respond to, any attempt by the Russian Federation to move beyond the limits of the treaty in a way that has military significance, before such an attempt became a threat to U.S. national security. The military significance of a cheating scenario depends upon its impact on the military capability of the parties and its impact on strategic stability. The key to strategic stability is that each side possesses strategic nuclear forces able to execute a devastating second strike under any war initiation scenario.

After conducting a thorough analysis, we have concluded that Russia will not be able to achieve militarily significant advantage by cheating or breakout under New START, primarily because of the inherent survivability of the planned U.S. strategic force structure—specifically, our *Ohio*-class ballistic missile submarines, a number of which are at sea at any given time.

Further, when considering the utility of a breakout and potentially disarming first strike, Russia will know with certainty that the United States has retained a highly responsive force of up to 420 single warhead Minuteman III ICBMs deployed in hardened silos. Russian consideration of such a strike would always have to factor in the ability of the U.S. President to decide to launch those ICBMs while under Russian attack, a decision that would enable a large portion of the ICBM force to deliver their warheads to Russian targets. The Russian President would almost certainly understand that no matter how many warheads Russia launches in an attempt to destroy the U.S. ICBMs, the United States would possess the ability to negate the effectiveness of a first strike by launching before the Russian warheads reached the ICBMs in their silos.

Therefore, additional Russian warheads above the New START limits would have little to no effect on the U.S. assured second-strike capabilities that underwrite our strategic deterrence posture.

However, if Russia were to attempt to gain political advantage by cheating or breakout, the United States will be able to rapidly respond by increasing the alert levels of SSBNs and bombers, and by uploading warheads on SSBNs and ICBMs. This would offset any conceivable political benefits the Russians may believe they would gain through temporary numerical advantage.

47. Senator INHOFE. General Chilton, you state in your prepared testimony that "New START will reestablish a strategic nuclear arms control regime that provides intrusive access to Russian nuclear forces and a measure of predictability in Rus-

sian force deployments over the life of the treaty." However, the New START verification regime is clearly less stringent than that found in the expired START I. For example, there are fewer onsite inspections, a weakening of telemetry exchange provisions, and no longer any continuous monitoring of missile production facilities. The administration says on the one hand that the treaty is verifiable, but on the other hand it says that cheating is irrelevant. Do you agree cheating is irrelevant?

General CHILTON. I do not think Russian cheating on New START would be irrelevant.

The document titled "New START Treaty—The Determination Pertaining to Verification" dated 12 July 2010, prepared by the State Department in accordance with Section 306 of the Arms Control and Disarmament Act, states: "Russian cheating under the treaty would have little, if any, effect on the assured second-strike capabilities of U.S. strategic forces. In particular, the survivability and response capabilities of strategic submarines and heavy bombers would be unaffected by even large-scale cheating."

I agree with that statement. Russia will not be able to achieve a militarily significant advantage by cheating or breakout under New START, due to the inherent survivability of the planned U.S. strategic force structure. I would add to the State Department's quote above that while our ICBM force is potentially vulnerable to a Russian counterforce strike, no Russian leadership could confidently assume that the President would not launch ICBMs before attacking Russian warheads would arrive.

If Russia were to attempt to gain political advantage by cheating or breakout, the United States will be able to rapidly respond by increasing the alert levels of SSBNs and bombers, and by uploading warheads on SSBNs and ICBMs. This would offset any conceivable political benefits the Russians may believe they would gain through temporary numerical advantage.

48. Senator INHOFE. General Chilton, if it doesn't matter if Russia cheats, why do we need the treaty?

General CHILTON. I don't think that it doesn't matter if the Russians cheat. Any cheating would be taken very seriously and could well become a politically significant issue that could lead to changes in U.S. military posture.

As I articulated in my prepared statement, I believe that there are three reasons why the New START agreement represents a positive step forward. First, New START limits the number of Russian ballistic missile warheads that can target the United States—missiles that pose the most prompt threat to our forces and our Nation. Second, New START's flexible limits on deployed and nondeployed delivery platforms retain sufficient flexibility in managing our triad of deterrent forces to hedge against both technical and geopolitical surprise. Third, New START will reestablish a strategic nuclear arms control verification regime that provides access to Russian nuclear forces and a measure of predictability in Russian force deployments over the life of the treaty.

49. Senator INHOFE. General Chilton, did you agree with the findings of the NIE?

General CHILTON. The NIE on Monitoring the New START treaty presents the IC's assessment of its ability to monitor the treaty based on treaty verification measures and available current and projected intelligence collection and analytic resources. I have no reason to doubt this assessment.

50. Senator INHOFE. General Chilton, do you believe this new verification regime is sufficient to detect large-scale cheating by the Russians over the life of the treaty?

General CHILTON. Yes. Please see the classified NIE on Monitoring the New START Treaty, published on June 30, 2010.

51. Senator INHOFE. General Chilton, what do you consider to be militarily significant cheating? In other words, how many additional ballistic missiles and/or warheads would the Russians have to secretly deploy to concern you: 100? 500? 1,000?

General CHILTON. The military significance of a cheating or breakout scenario depends upon its effect on the military capability of the parties and, in particular, its effect on strategic stability. The key to strategic stability is that each side possesses strategic nuclear forces capable of executing a devastating second strike under any war initiation scenario and the existence of rough parity between the parties in strategic offensive arms. Stability in the strategic nuclear relationship between the United States and Russian Federation depends, therefore, upon the assured capability of each side to deliver a sufficient number of nuclear warheads to inflict unacceptable damage on the other side, even with an opponent attempting a disarming

first strike. Consequently, the only Russian breakout or cheating scenario that could undermine the basic framework of mutual deterrence that exists between the United States and Russia, is a scenario that enabled Russia to deny the United States the assured ability to respond against a substantial number of highly valued Russian targets following a Russian attempt at a disarming first strike.

Our analysis has clearly demonstrated that additional Russian warheads, even significantly above the treaty limits, would do nothing to threaten the survivability of U.S. ballistic missile submarines at sea or bombers when on alert. Nor would they guarantee the destruction of all U.S. land-based ICBMs.

Therefore, Russia would not be able to achieve a militarily significant advantage by cheating or breakout under the New START treaty, due to the inherent survivability of the planned U.S. strategic force structure—specifically, our SSBNs. Additional Russian warheads above the New START treaty limits would have little to no effect on the U.S. assured second-strike capabilities that underwrite stable deterrence. Moreover, the United States would be capable of uploading additional warheads on all three legs of the strategic triad in order to restore parity in the strategic nuclear balance.

Regarding the second question, any secret Russian deployments of any ballistic missiles or warheads in violation of New START treaty provisions would concern me due to the political significance of deliberate Russian cheating.

52. Senator INHOFE. General Chilton, you note in your prepared statement that when STRATCOM analyzed the required nuclear weapons and delivery vehicle force structure, it took into account "an assessment of potential adversary capabilities." This suggests you support New START force levels of 1,550 warheads on 700 delivery vehicles based on a current projection of smaller Russian forces. What if the geopolitical situation changes and the Russians cheat?

General CHILTON. The New START treaty's central limits preserve the ability of the United States to respond to geopolitical changes in a timely and effective manner. If Russia were to attempt to gain political advantage by cheating or breakout, the United States could respond in several ways. Specifically:

- The United States could substantially upload the ballistic missile submarine leg of the triad with hundreds of additional warheads, and/or send additional submarines to sea on a routine, day-to-day basis.
- The United States could also choose to return a portion of its heavy bomber force to an alert posture. In this posture, such heavy bombers would be capable of launch and safe escape from their airbases within minutes of receiving a tactical warning of an imminent Russian strike, thereby improving their survivability. These bombers could then contribute substantially to any U.S. nuclear response.
- The United States could also upload additional ICBM warheads on a portion of its deployed Minuteman III force, and could choose to redeploy a limited number of additional ICBMs and warheads in nondeployed silo launchers.

53. Senator INHOFE. General Chilton, would your assessment concerning the adequacy of U.S. nuclear forces change if the Russians increased significantly their nuclear forces?

General CHILTON. No. A number of factors were considered in STRATCOM's analysis for the New START treaty and the NPR, including but not limited to: employment guidance, deterrence, extended deterrence, assurance of friends and allies, and—most pertinent to this question—the ability to hedge against technical and geopolitical developments based on the nuclear infrastructure.

Russia would not be able to achieve a militarily significant advantage by cheating or breakout under the New START treaty, due to the inherent survivability of the planned U.S. strategic force structure—specifically, our SSBNs. Additional Russian warheads above the New START limits would have little to no effect on the U.S. assured second-strike capabilities that underwrite stable deterrence.

If Russia were to attempt to gain a political advantage by cheating or breakout, the United States could respond in several ways:

- The United States could substantially upload the ballistic missile submarine leg of the triad with hundreds of additional warheads and/or send additional submarines to sea.
- The United States could also choose to return a portion of its heavy bomber force to an alert posture. In this posture, such heavy bombers would be capable of launch and safe escape from their airbases within minutes after receiving tactical warning of an imminent Russian strike, thereby im-

proving their survivability. These bombers could then contribute substantially to any U.S. nuclear response.

• The United States could also upload additional ICBM warheads on a portion of its deployed Minuteman III force, and could choose to redeploy a limited number of additional ICBMs and warheads in nondeployed silo launchers.

54. Senator INHOFE. General Chilton, what's the likelihood that we would detect this in a timely manner?

General CHILTON. Please see the NIE on Monitoring the New START Treaty, published on June 30, 2010.

55. Senator INHOFE. General Chilton, does the verification regime in New START permit early detection?

General CHILTON. Please see the NIE on Monitoring the New START Treaty, which was published on June 30, 2010.

MULTIPLE INDEPENDENT REENTRY VEHICLE

56. Senator INHOFE. Dr. Miller and General Chilton, you suggest it is stabilizing for the United States to deploy only single reentry vehicle ICBMs. Is Russia similarly deMIRVing their missiles? If not, is that not destabilizing too?

Dr. MILLER and General CHILTON. Russia will determine the composition and structure of its force posture based on its own analyses. However, we do not anticipate that Russia will deMIRV its ICBM force. It is important to note that MIRVed mobile ICBMs differ from fixed, silo-based MIRVed ICBMs, because the former, when deployed in the field, are more survivable and thus do not present a stark use or lose as ICBMs can.

Should Russia continue employing MIRVed ICBMs in its force posture, it will not be destabilizing because of the inherent capabilities of the triad of systems that we deploy, and the posture in which we maintain and operate them. The United States maintains a sizable portion of its SSBNs at sea and its ICBM forces on alert.

For more information on Russian strategic forces, please see the NIE on Monitoring the New START Treaty, published on June 30, 2010.

57. Senator INHOFE. Dr. Miller and General Chilton, wasn't START II intended to deMIRV all land-based missiles?

Dr. MILLER and General CHILTON. Yes. However, the START II treaty never entered into force.

CONVENTIONALLY-ARMED BALLISTIC MISSILES

58. Senator INHOFE. Dr. Miller and General Chilton, if, during the duration of the treaty, the United States deploys a conventionally-armed ballistic missile (whether on submarine, surface ship, or bomber) that is capable of boost glide and ballistic flight (in excess of 50 percent of its trajectory), would that be counted by the treaty limits for strategic delivery vehicles?

Dr. MILLER and General CHILTON. A submarine-launched ballistic missile (SLBM) with a range of more than 600 km that has a ballistic trajectory over most of its flight path would meet the definition of an SLBM under the treaty, and thus would be subject to the provisions of the New START treaty. A submarine-launched boost-glide missile that does not have a ballistic trajectory over most of its flight path would not meet the definition of an SLBM under the treaty, although it would be subject to the treaty if it used a first stage of an SLBM. In addition, the treaty does not limit missiles launched from surface ships or aircraft, unless such a missile is an existing type of ICBM or SLBM. If such systems were developed and deployed by the United States as conventional arms, the Russian Federation might seek to characterize these missiles as a new kind of strategic offensive arm subject to the New START treaty. However, U.S. negotiators made clear during the New START treaty negotiations that we would not consider future, strategic-range non-nuclear systems that do not otherwise meet the definitions of this treaty, to be new kinds of strategic offensive arms for purposes of the treaty.

59. Senator INHOFE. Dr. Miller and General Chilton, would there be grounds for any discussion of such systems in the BCC?

Dr. MILLER and General CHILTON. The New START treaty, as was the case in the START treaty, makes no distinction between nuclear or conventionally armed

missiles that meet the definitions of ICBMs or SLBMs, or between nuclear and conventional warheads on such missiles. Conventionally armed ICBMs or SLBMs based on existing types of ICBMs and SLBMs listed under the New START treaty or new types of ICBMs and SLBMs are allowed and will be counted against the limits on strategic delivery vehicles and warheads under the treaty.

Thus, the existence of such systems and their deployment should not lead to discussions within the BCC. Nevertheless, as expressed in Part Six of the Protocol to the New START treaty, the parties may use the BCC to resolve questions relating to compliance with the obligations assumed by the parties, and, in that context, discussions related to those systems might ensue, as they could for any other kind of strategic delivery vehicle.

If the Russian Federation were to seek to characterize future non-nuclear boost-glide systems, or ship-based missiles, as a new kind of strategic offensive arm, it could raise this issue in the BCC. However, the United States made clear during the New START treaty negotiations that we would not consider future, strategic range, non-nuclear systems that do not otherwise meet the definitions of the treaty to be new kinds of strategic offensive arms for purposes of the treaty.

60. Senator INHOFE. Dr. Miller and General Chilton, would it matter if the missile only had a 1,000-mile range?

Dr. MILLER and General CHILTON. Ground-launched ballistic missiles with a range of 1,000 miles are prohibited by the Intermediate-Range Nuclear Forces (INF) Treaty. A 1,000-mile range SLBM would be subject to the New START treaty if it met the treaty definition of a ballistic missile, meaning that it flew a ballistic trajectory over most of its flight path. A 1,000-mile range conventionally-armed surface ship-launched or air-launched ballistic missile would not meet the definition of an ICBM or SLBM and therefore would not be subject to the treaty as an existing kind of strategic offensive arm, although either party could raise the issue of whether it were a new kind of strategic offensive arm. U.S. negotiators made clear during the New START treaty negotiations that the United States would not consider future, strategic-range non-nuclear systems, which do not otherwise meet the definitions of systems limited by the New START treaty, to be new kinds of strategic offense arms for the purposes of the treaty.

61. Senator INHOFE. Dr. Miller and General Chilton, what if it had a 21-inch or 36- to 40-inch diameter?

Dr. MILLER and General CHILTON. The dimensions of a ballistic missile do not determine whether it is subject to the treaty. The only issue which could turn on missile dimensions is whether the missile was an existing type of ICBM and SLBM. In this case, none of the dimensions mentioned in the question would result in a missile being classified as an existing type of ICBM or SLBM. The accountability of small ballistic missiles under the New START treaty would depend upon their range, flight profile, and launch mode.

62. Senator INHOFE. Dr. Miller and General Chilton, would it make any difference if it were launched from a vertical launching system tube?

Dr. MILLER and General CHILTON. Whether a missile is launched from a vertical or horizontal tube is immaterial. A missile is accountable under the treaty if it meets the definition of items that are limited and, in the context of a deployed launcher, is launched from a type of launcher that is constrained by the treaty. The precise configuration of the launcher does not matter as long as the launcher meets the treaty definition of an ICBM or SLBM launcher.

VERIFICATION PROVISIONS

63. Senator INHOFE. Dr. Miller, is the verification in the treaty adequate to give us the same understanding of new Russian systems as we have of current Russian systems thanks to START I?

Dr. MILLER. As Secretary Gates has testified, one of the greatest contributions of this treaty is its strong verification regime, which will increase transparency and confidence in the numbers and status of Russian nuclear forces, without imposing significant burdens on our ability to operate U.S. nuclear forces. Like START, the New START verification regime includes: short notice, onsite inspections to confirm data; a comprehensive, updated database; notifications pertaining to the movements between facilities and changes in the status of strategic offensive arms; use of unique identifiers; provisions against interference with national technical means; and the establishment of a BCC. Further, building on over 15 years of experience

with inspections under the previous START treaty, the New START inspection procedures were designed to include provisions addressing issues which arose during implementation of START's complex inspection and verification provisions.

Please see the NIE on Monitoring the New START Treaty for additional information and analysis.

64. Senator INHOFE. Dr. Miller, how important is it we get telemetry of new Russian missile tests in order to understand the capabilities of those systems?

Dr. MILLER. There are no obligations, prohibitions, or limitations in the New START treaty that require the analysis of telemetric information in order to verify a party's compliance with the treaty. Nevertheless, the United States and Russia agreed to exchange telemetric information on an equal number of launches (up to five) of ICBMs and SLBMs each year, with the testing party deciding the launches for which it will exchange information, to promote transparency and predictability. The value of such exchanges will depend on the specific launches for which telemetric information is exchanged.

For more discussion about the purpose served by telemetry for intelligence collection, please see the classified NIE on the IC's ability to monitor the New START treaty.

65. Senator INHOFE. Dr. Miller, how valuable, from an intelligence collection perspective, is the telemetry information that we will supply to the Russians?

Dr. MILLER. Since there are no specific obligations, prohibitions, or limitations in the New START treaty that would require the analysis of telemetric information in order to verify a party's compliance with the treaty, the role of telemetry under the New START treaty is to promote transparency and predictability. The parties have agreed to allow for the exchange of telemetric information on an agreed equal number (up to five annually) of launches of ICBMs and SLBMs, with the testing party deciding the launches on which it will exchange information. For the missiles on which telemetry is exchanged, telemetry can provide information on technical characteristics of new or modified missiles such as their launch weight or throw-weight. Consequently, while the telemetry on the launches of existing types of ICBMs and SLBMs provided to the Russians under New START may be useful to them in assessing the reliability and performance of the Minuteman III ICBM and Trident II/D5 SLBM, it is unlikely to provide any particularly valuable new information on these systems.

66. Senator INHOFE. Dr. Miller, would U.S. security be enhanced by not transmitting and encrypting that information?

Dr. MILLER. The alternative to broadcasting telemetry would be to record the telemetric data within a capsule onboard the front section of the missile and then recover the ejected capsule following completion of the launch. The United States would prefer not to employ this technically difficult and costly encapsulation approach, and sees benefits in terms of transparency and predictability in the exchange of some telemetric information. Under New START, the parties will agree on the number of launches—up to five each year—for which telemetry is provided to the other party. With the exception of these launches, the United States will have the right to encrypt the telemetry on all other launches. Even for launches for which the unencrypted telemetry is provided, this openness will not apply to telemetry regarding the operation of reentry vehicles or other objects installed on the missile for the purpose of being delivered into the upper atmosphere or space, which could be encrypted if there were a reason to do so.

67. Senator INHOFE. Dr. Miller, do the same answers apply for potential U.S. follow-on systems?

Dr. MILLER. Yes.

68. Senator INHOFE. Dr. Miller, if the Russians adopt a policy of denying the U.S. telemetry on their new systems deployed during the duration of the New START treaty, would we adopt the same policy? If not, why not?

Dr. MILLER. The United States does not currently plan to develop a new ICBM or SLBM during the coming decade. Hence, no such decision will be needed.

69. Senator INHOFE. Dr. Miller, the DOS verification assessment takes a rather narrow approach to determining the potential effects of Russian cheating under the treaty when it states that such cheating would have "little or any effect on the assured second-strike capabilities of U.S. strategic forces." What other potential strategic or political consequences could result from various levels of Russian cheating?

Dr. MILLER. Russia will not be able to achieve militarily significant cheating under the New START treaty due to both the treaty's verification regime and the inherent survivability and flexibility of planned U.S. force structure. If Russia were to attempt to gain political advantage by substantially expanding the number of warheads deployed on its strategic nuclear forces above the treaty's warhead limit, the United States will be able to respond rapidly by increasing the alert levels of SSBNs and bombers, and by uploading additional warheads on ICBMs, SLBMs, and bombers. Therefore, the survivable and flexible U.S. strategic posture planned under the New START treaty will help deter any future Russian leaders from cheating or breakout from the treaty, should they ever have such an inclination.

This does not mean that Russian compliance with the New START treaty is unimportant. The United States expects Russia to comply fully with the treaty, and the United States will use all elements of the verification regime—along with all available intelligence means—to ensure that this is the case. Any Russian cheating could affect the sustainability of the New START treaty, the viability of future arms control agreements, and the ability of the United States and Russia to work together on other issues. Should there be any signs of Russian cheating or preparations to breakout from the treaty, the executive branch would immediately raise this matter through diplomatic channels, and if not resolved, raise it immediately to higher levels. The Senate would also be kept informed of such actions.

70. Senator INHOFE. Dr. Miller, did the Russians use shrouds on their ballistic missiles that limited our ability to confirm the number of warheads on a given missile under START I?

Dr. MILLER. In some cases, oversized Russian reentry vehicle covers and their method of emplacement hampered U.S. inspectors from ascertaining that the front section of the ICBMs and SLBMs being inspected contained no more reentry vehicles than the number of warheads attributed to a missile of that type under the START treaty. Following discussions and the implementation of new procedures worked out at the Joint Compliance and Inspection Commission, many of these reentry vehicle cover-related issues were resolved during the life of the START treaty.

71. Senator INHOFE. Dr. Miller, if they continue this practice under the new treaty, is that more or less significant given that under this treaty we are supposed to actually count warheads?

Dr. MILLER. All potential compliance issues regarding reentry vehicle (RV) covers were considered to be significant under the START treaty and will continue to be viewed as significant under the New START treaty. The New START treaty, like the START treaty, establishes the inspected party's right to cover RVs and other equipment with individual covers, but with the caveat that such covers must not hamper inspectors in accurately confirming that the number of RVs emplaced on a front section matches the declaration for that missile (or for START, that the number of RVs emplaced does not exceed the attributed number for that type of missile). These provisions are intended to ensure that covers are not used in such a manner that would obscure the actual number of reentry vehicles on a front section. Under the New START treaty, the verification task is to determine the actual number of reentry vehicles emplaced on a missile selected for inspection, whereas under the START treaty the verification task was to confirm that there were no more than the attributed number of reentry vehicles for a given missile type.

Please see the NIE, published on June 30, 2010, on Monitoring the New START Treaty for additional information on this topic.

72. Senator INHOFE. Dr. Miller, according to open source reporting, the Russians are deploying a new 5,000 km nuclear-capable cruise missile on a new class of submarines. Is that a tactical or strategic nuclear weapon?

Dr. MILLER. Long-range, nuclear-armed, submarine-launched cruise missiles traditionally have been regarded as non-strategic/tactical rather than strategic weapons and have not been limited or reduced under any of the U.S.-Russia strategic arms reduction and limitation treaties.

73. Senator INHOFE. Dr. Miller, don't we need better verification at lower levels than we needed at higher force levels?

Dr. MILLER. Effective verification measures have been and will be needed regardless of the level of the limits in the strategic arms limitation and reduction treaty. The START treaty's verification regime was tailored to the specific obligations of the START treaty, while the New START treaty verification provisions are tailored to the specific obligations of the new treaty. The New START treaty's verification re-

gime was designed to be effective while reducing the implementation costs and the disruption to operations at U.S. and Russian military facilities subject to the treaty.

74. Senator INHOFE. Dr. Miller, both sides will have significant upload capability under this treaty. Have you considered whether in a crisis, the sides might get into a competitive uploading dynamic and might that not be destabilizing?

Dr. MILLER. Any Russian uploading that resulted in breaking the treaty's limit on warheads on deployed strategic delivery vehicles, while not having military significance due to the inherent survivability of U.S. forces and particularly at-sea SSBNs, would be of significant political concern. If the United States decided to upload its missiles in response, we could do so in a manner that minimized the vulnerability of U.S. forces, for example by uploading one SSBN at a time, and/or by placing bombers on strip alert to increase the number of second-strike weapons for the United States. Both the United States and Russia could load heavy bombers with nuclear armaments during a much shorter period of time than required for uploading ICBMs and SLBMs; furthermore, such loading is legal and would not affect the number of warheads counted under the New START warhead limit. The loading out of heavy bombers on one or both sides and the placement of these bombers on strip alert would certainly be noteworthy and a powerful signal of increased force readiness during a major crisis. Given the fact that relatively slow flying bombers (when compared to ballistic missiles) are not well-suited to play a central role in a would-be disarming first strike, uploading of these systems would, in my view, not be destabilizing.

75. Senator INHOFE. Dr. Miller, is the United States assured of timely and accurate warning if the Russians were to move quickly to attempt large scale breakout of the treaty in a crisis?

Dr. MILLER. On the IC's monitoring confidences regarding detection and thus the warning of any large-scale Russian breakout from the New START treaty, see the NIE.

However, should there be any signs of Russian cheating or preparations to breakout from the treaty, the executive branch would immediately raise this matter through diplomatic channels, and if not resolved, raise it immediately to higher levels. We would also keep the Senate informed.

76. Senator INHOFE. Dr. Miller, the DOS verification assessment suggests that this is a moot question because our nuclear deterrent would not be affected even by large scale Russian cheating. Do you agree? If so, then does this not raise the fundamental question of whether this treaty has any real value?

Dr. MILLER. The assessment of the Secretary of Defense, the Chairman of the Joint Chiefs, the Joint Chiefs, and the Commander, STRATCOM is that Russia will not be able to achieve militarily significant cheating or breakout under New START, due to both the New START verification regime and the inherent survivability and flexibility of the planned U.S. strategic force structure. This is consistent with the DOS verification assessment.

The United States, however, would take any signs of Russian cheating or breakout from the treaty very seriously. Should there be any signs of Russian cheating or preparations to breakout, the executive branch would immediately raise this matter through diplomatic channels, and if not resolved, raise it immediately to higher levels. We would also keep the Senate informed.

None of this lessens the value of this treaty to U.S. security. As the Secretary of Defense and many other senior leaders from across the administration have said, the United States is better off with this treaty than without it. Without the treaty's verification measures, the United States would have much less insight into Russian strategic forces, thereby requiring our military to plan based on worst-case assumptions. This would be an expensive and potentially destabilizing approach that this nation should not accept.

77. Senator INHOFE. Dr. Miller, has NNSA fully committed to support full production of the W76–1 life extension warheads to meet all DOD requirements? If not, when do you expect that to occur?

Dr. MILLER. NNSA has fully committed to complete the planned W76–1 LEP in order to meet DOD requirements. However, the recent flood at the Pantex production facility may affect the schedule. NNSA's ability to meet those commitments will also be directly dependent upon full funding of the President's fiscal year 2011 budget request and continuing support of this program during the full production period.

78. Senator INHOFE. Dr. Miller, has there been a negotiation of those requirements based upon a perceived inability of NNSA to obtain full and adequate funding?

Dr. MILLER. No. DOD requirements for the W76–1 are based on the needs to meet the requirements of the commander of STRATCOM. The President's fiscal year 2011 NNSA budget request is adequate to support W76–1 production requirements.

79. Senator INHOFE. Dr. Miller, what is the status of the force structure and the resultant Nuclear Weapon Stockpile Plan (NWSP)?

Dr. MILLER. DOD outlined the baseline force structure under New START in the section 1251 report to Congress "New START Framework and Nuclear Force Structure Plans." As stated in that report, the United States retains the right to modify our force structure as appropriate under the treaty. The NWSP is in development as a part of the Nuclear Weapons Stockpile Memorandum to the President and the Requirements Planning Document that is due to be voted on by the Nuclear Weapons Council (NWC) soon. Once approved by the NWC, the package will be forwarded to the President for his approval.

80. Senator INHOFE. Dr. Miller, if the U.S. deploys conventional prompt strike assets that are not accountable per the treaty (e.g. boost glide), is the United States prohibited from utilizing that technology for nuclear delivery?

Dr. MILLER. No. If a strategic-range hypersonic boost glide system were developed for nuclear warhead delivery, it could be viewed as a new kind of strategic offensive arm that would be subject to the provisions of the New START treaty. As such, it would be subject to discussion and possible agreement in the BCC that it be made subject to the treaty.

81. Senator INHOFE. Dr. Miller, if Russia develops a nuclear boost glide system, could U.S. conventional forces then be accountable?

Dr. MILLER. A nuclear-armed hypersonic boost glide system, despite the fact that it did not meet the definition of an ICBM or SLBM under the New START treaty could be subject to the treaty, as a new kind of strategic offensive arm, irrespective of which party develops it. This matter would be discussed within the BCC. As stated previously and during negotiations with Russia, the United States would not consider any future, strategic range non-nuclear systems that do not otherwise meet the definitions of this treaty to be new kinds of strategic offensive arms for purposes of the treaty.

82. Senator INHOFE. Dr. Miller, you say that one option to respond to Russian cheating is that we could quickly upload our own delivery systems. How quickly could we do that? Please respond with a minimum and maximum possible time period for upload for each nuclear delivery system the United States will deploy during the life of the treaty.

Dr. MILLER. At the unclassified level, I can say that upload time for various systems would be days, months, or a few years. Upload time could be affected by weather, safety, and security considerations and the need to sustain a survivable deterrent capability while uploading operations were underway. A classified answer will be provided separately.

[Deleted.]

83. Senator INHOFE. Dr. Miller, will the United States maintain enough nondeployed warheads (and ALCMs and associated warheads) during the life of the treaty to fully upload (to maximum capacity) each U.S. delivery system?

Dr. MILLER. As stated in the Report of the 2010 NPR, the United States will retain the ability to upload some nuclear warheads as a technical hedge against any future problems or as a result of a fundamental deterioration of the security environment. The United States does not need to maintain enough nondeployed warheads to fully upload every single U.S. delivery system in order to effectively hedge against technical or geopolitical surprise, but will retain a substantial upload capacity.

84. Senator INHOFE. Dr. Miller, can the United States upload without the Russians realizing we were uploading?

Dr. MILLER. [Deleted.]

85. Senator INHOFE. Dr. Miller, please specify the minimum and maximum possible time periods during which deployments outside of that permissible by the treaty could be conclusively determined to be cheating at the following cheating levels:

- Tens of warheads on submarines
- Tens of warheads on bombers
- Tens of warheads on ballistic missiles (mobile and stationary)
- Hundreds of warheads on submarines
- Hundreds of warheads on bombers
- Hundreds of warheads on ballistic missiles (mobile and stationary)

Dr. MILLER. Please see the classified NIE on the IC's ability to monitor the New START treaty.

NNSA BUDGET COMPARISONS

86. Senator INHOFE. Mr. D'Agostino, why is the fiscal year 2012 NNSA budget flat when compared to fiscal year 2011 (negative if you consider inflation)?

Mr. D'AGOSTINO. The President's fiscal year 2011 budget request includes an increase of more than 10 percent for NNSA's weapons activities. This reflects an unprecedented commitment to modernizing our nuclear security infrastructure, revitalizing the science and technology at its core, and restoring the human capital required to accomplish our mission. In addition, the President has offered a plan for the next 10 years that includes $80 billion in critical investments, up from roughly $60 billion over the previous decade. These figures represent our understanding at the time the fiscal year 2011 budget request was submitted to Congress of what is required to implement the NPR and maintain the safety, security, and effectiveness of our nuclear stockpile without a resumption of underground nuclear testing. As each month passes, our understanding matures as to what is required to execute the NPR requirements. Because the NPR was completed after the release of the fiscal year 2011 budget request, these evolving insights into execution requirements will inform and have an impact on the fiscal year 2012 request and the associated FYNSP.

87. Senator INHOFE. Mr. D'Agostino, why is the fiscal year 2013 budget essentially flat when compared to fiscal year 2011?

Mr. D'AGOSTINO. The FYNSP included in the President's fiscal year 2011 budget request represents our understanding at the time the fiscal year 2011 budget request was submitted to Congress of what is required to implement the NPR and maintain the safety, security, and effectiveness of our nuclear stockpile without a resumption of underground nuclear testing. It includes an annual increase of more than 10 percent for NNSA's weapons activities. In addition, the President has outlined his plan to invest $80 billion over the next decade to modernize our nuclear security infrastructure, up from roughly $60 billion over the previous decade. This reflects an unprecedented commitment to modernizing our nuclear security infrastructure, revitalizing the science and technology at its core, and restoring the human capital required to accomplish our mission. As each month passes, our understanding matures as to what is required to execute the NPR requirements. Because the NPR was completed after the release of the fiscal year 2011 budget request, these evolving insights into execution requirements will inform and have an impact on the fiscal year 2012 and fiscal year 2013 request and the associated FYNSP.

88. Senator INHOFE. Mr. D'Agostino, were these budget estimates placeholders that you intend to adjust upwards prior to the next budget request (fiscal year 2012), reflecting a continued commitment to improving the science and technology research necessary to sustain our current stockpile until infrastructure improvements are reached?

Mr. D'AGOSTINO. The funding requirements identified to date represent the most complete view of our needs at the time the fiscal year 2011 budget request was submitted to Congress. It includes a significant increase in the science, technology, and engineering that underpin our nuclear deterrent. As each month passes, our understanding matures as to what is required to execute the NPR requirements. Because the NPR was completed after the release of the fiscal year 2011 budget request, these evolving insights into execution requirements will inform and have an impact on the fiscal year 2012 request and the associated FYNSP.

STOCKPILE STEWARDSHIP MANAGEMENT PROGRAM

89. Senator INHOFE. Mr. D'Agostino, is the plan outlined in the 1251 report and the Stockpile Stewardship Management Program (SSMP) sufficient to produce the number of W76–1 life extension warheads needed to meet DOD requirements?

Mr. D'AGOSTINO. Yes.

90. Senator INHOFE. Mr. D'Agostino, what is the status of the NWSP?

Mr. D'AGOSTINO. The fiscal years 2011–2017 NWSP, due to the President by September 30, 2010, is currently in the second stage of coordination in the NWC. The final stage requests the signatures of the Secretaries of Defense and Energy prior to release of the document to the National Security Council. The most current NWSP is one signed by the President in 2008 covering stockpile numbers for fiscal years 2009–2014 and is commonly referred to as National Security Presidential Directive 68. The Departments of Defense and Energy collaboratively decided to forego sending the NWSP originally due to the President in September 2009 in anticipation of changes that would be made as part of the NPR and the New START treaty. The draft NWSP now with the NWC will be consistent with the stockpile numbers contained in the SSMP and the section 1251 report.

91. Senator INHOFE. Mr. D'Agostino, does that plan align with the 1251 report and the SSMP?

Mr. D'AGOSTINO. Yes. The draft NWSP now with the NWC will be consistent with the stockpile numbers contained in the SSMP and the section 1251 report.

92. Senator INHOFE. Mr. D'Agostino, will disconnects between the NWSP and the SSMP be resolved through an increased budget request starting in fiscal year 2012?

Mr. D'AGOSTINO. The NWSP and the SSMP were informed by the requirements that were developed in the NPR and are therefore in alignment. The NNSA will continue to provide the President with executable resource requirements that will support the President's vision as he develops his future budget requests for Congress.

93. Senator INHOFE. Mr. D'Agostino, would you please provide a detailed site-by-site breakdown on Readiness in the Technical Base and Facilities (RTBF) (operations and facilities construction and maintenance) for the period fiscal year 2008 to fiscal year 2018?

Mr. D'AGOSTINO. A detailed RTBF operations and maintenance and construction breakdown by site is provided in the attached table for fiscal years 2008 through 2015. A site-by-site breakdown has not yet been determined for fiscal years 2016 through 2018.

Readiness In Technical Base and Facilities (RTBF)

(Thousands)

* Actual allocation at July 2010, and excluded PDCF

Site Code	Prog	Subprog	Actual Allocation FY2008	Actual Allocation FY2009	Actual Allocation FY2010 *	Presidential Budget Request FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
KCP	1: Operation of Facilities	R1.01: Operation of Facilities	77,684	86,694	122,003	186,102	136,809	95,373	86,460	89,418
	2: Program Readiness	R2.01: Program Readiness	4,940	3,252	4,481	4,662	4,594	4,573	4,233	4,378
	3: Special Projects	R3.01: Special Projects	0	0	(1)	0	0	0	0	0
	4: Material Recycle and Recovery	R4.01: Material Recycle and Recovery	500	165	0	0	0	0	0	0
	5: Containers	R5.01: Containers	246	644	1,584	125	976	954	963	996
	8: Readiness in Technical Base Facilities Construction									
		02-D-103-130 PED Gas Transfer Capacity Expansion	(104)	0	0	0	0	0	0	0
		03-D-121 Gas Transfer Capacity Expansion	(217)	0	0	0	0	0	0	0
		99-D-125 Replace Boilers & Controls	(94)	0	0	0	0	0	0	0
		99-D-127 Stockpile Management Restructuring Initiative	(658)	0	0	0	0	0	0	0
		KCP Total	**82,297**	**90,755**	**128,067**	**190,889**	**142,379**	**100,900**	**91,656**	**94,792**
LLNL	1: Operation of Facilities	R1.01: Operation of Facilities	90,866	85,715	87,970	80,106	42,307	43,002	22,110	22,867
	2: Program Readiness	R2.01: Program Readiness	640	1,542	2,136	0	0	0	0	0
	3: Special Projects	R3.01: Special Projects	(194)	0	0	0	0	0	0	0
	5: Containers	R5.01: Containers	2,190	1,282	593	163	160	158	161	167
	8: Readiness in Technical Base Facilities Construction									
		01-D-103-070 PED TA-18 Mission Relocation	0	(21)	0	0	0	0	0	0
		02-D-105 Engineering Technology Complex Upgrade	(12)	0	0	0	0	0	0	0
		03-D-103-040 PED Tritium Facility Modernization	(4)	0	0	0	0	0	0	0
		04-D-128 TA-18 Mission Relocation Project	469	(750)	0	0	0	0	0	0
		LLNL Total	**93,955**	**87,768**	**90,700**	**80,269**	**42,467**	**43,160**	**22,271**	**23,034**
LANL	1: Operation of Facilities	R1.01: Operation of Facilities	289,325	288,724	291,521	318,464	311,265	306,709	291,778	301,767
	2: Program Readiness	R2.01: Program Readiness	3,040	3,755	6,890	0	0	0	0	0
	3: Special Projects	R3.01: Special Projects	0	(29)	0	0	0	0	0	0
	4: Material Recycle and Recovery	R4.01: Material Recycle and Recovery	17,479	15,359	23,021	15,270	12,128	14,145	14,897	15,407
	5: Containers	R5.01: Containers	723	540	978	0	0	0	0	0
	8: Readiness in Technical Base Facilities Construction									
		01-D-103-070 PED TA-18 Mission Relocation	0	(340)	0	0	0	0	0	0
		03-D-102 National Security Science Building Phase I	0	0	(409)	0	0	0	0	0
		04-D-125 Chemistry & Metallurgy Facility Replacement Project	74,141	97,194	94,625	225,000	305,000	300,000	299,961	300,000
		04-D-128 TA-18 Mission Relocation Project	5,335	2,253	700	0	0	0	0	0
		06-D-140-010 PED TA-55 Radiography Facility	(3,836)	0	0	0	0	0	0	0
		06-D-140-020 PED TA-55 Reinvestment Project	1,979	8,245	5,000	0	0	0	0	0

* Actual allocation at July 2010, and excluded PDCF

Site Code	Prog	Subprog	Actual Allocation FY2008	Actual Allocation FY2009	Actual Allocation FY2010 *	Presidential Budget Request FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
		06-D-140-030 PED Radioactive Liquid Waste Treatment Facility Upgrade	5,346	7,554	7,000	4,000	0	0	0	0
		07-D-140-020 PED TRU Waste Facility	2,452	7,223	0	5,000	6,500	12,349	71,151	40,000
		07-D-220 Radioactive Liquid Waste Treatment Facility Upgrade Project	26,162	14,170	0	0	40,000	15,455	0	0
		08-D-804 TA-55 Reinvestment Project	5,885	7,663	0	0	0	0	0	0
		09-D-007 LANSCE Refurbishment	0	19,300	(7,900)	0	0	0	0	0
		11-D-801 TA-55 Reinvestment Project Phase 2	0	0	0	20,000	19,640	20,221	20,468	42,480
		LANL Total	**428,031**	**471,611**	**421,427**	**587,734**	**694,533**	**668,879**	**698,255**	**699,654**
NTS	1: Operation of Facilities	R1.01: Operation of Facilities	52,834	93,538	79,862	80,077	74,883	75,176	75,486	86,190
	2: Program Readiness	R2.01: Program Readiness	23,630	21,046	25,444	22,815	14,144	13,855	19,099	19,752
	8: Readiness in Technical Base Facilities Construction									
		01-D-103-070 PED TA-18 Mission Relocation	0	21	0	0	0	0	0	0
		04-D-103-010 PED NTS Replacement Fire Station No. 1 & No. 2	(93)	0	0	0	0	0	0	0
		04-D-128 TA-18 Mission Relocation Project	22,675	8,539	800	0	0	0	0	0
		06-D-402 NTS Replace Fire Station No.1 & No. 2	6,591	5,560	1,473	0	0	0	0	0
		06-D-404 Building B-3 Remediation, Restoration & Ungraded	0	(119)	0	0	0	0	0	0
		NTS Total	**105,637**	**128,585**	**107,580**	**102,892**	**89,027**	**89,031**	**94,585**	**105,942**
Pantex	1: Operation of Facilities	R1.01: Operation of Facilities	128,892	126,162	134,842	121,254	117,332	118,189	118,391	122,441
	2: Program Readiness	R2.01: Program Readiness	4,238	5,315	3,743	3,734	3,638	3,738	3,397	3,513
	5: Containers	R5.01: Containers	4,200	4,580	3,389	4,367	3,900	3,856	3,906	4,040
	6: Storage	R6.01: Storage	7,883	10,069	8,275	8,246	7,177	8,150	7,487	7,743
	8: Readiness in Technical Base Facilities Construction									
		02-D-130-100 PED Building 12-44 Production Cells Upgrade	(95)	0	0	0	0	0	0	0
		02-D-130-110 PED SNM Component Requalification Facility	(51)	0	0	0	0	0	0	0
		03-D-103-020 PED Building 12-64 Production Upgrades	(840)	0	0	0	0	0	0	0
		03-D-123 Special Nuclear Materials Requalification	0	(2,655)	0	0	0	0	0	0
		04-D-103-020 PED High Explosive Pressing Facility	(107)	0	(198)	0	0	0	0	0
		04-D-126 Building 12-44 Production Cell Upgrade		(4,380)	0	0	0	0	0	0
		05-D-140-030 PED Component Evaluation Facility	1,961	(12,996)	0	0	0	0	0	0
		05-D-401 Building 12-64 Production Bays Upgrades	(657)	0	0	0	0	0	0	0

* Actual allocation at July 2010, and excluded PDCF

Site Code	Prog	Subprog	Actual Allocation FY2008	Actual Allocation FY2009	Actual Allocation FY2010 *	Presidential Budget Request FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
		08-D-801 High Pressure Fire Loop	6,866	1,940	31,910	0	0	0	0	0
		08-D-802 High Explosive Pressing Facility	4,008	19,386	(22,781)	30,000	30,359	0	0	0
		96-D-122 Sewage Treatment Quality Upgrade	(238)	0	0	0	0	0	0	0
		99-D-128 Stockpile Management Restructuring Initiative	(735)	0	0	0	0	0	0	0
		Pantex Total	**155,326**	**147,420**	**159,181**	**167,601**	**162,406**	**133,933**	**133,181**	**137,737**
SNL	1: Operation of Facilities	R1.01: Operation of Facilities	156,033	128,206	103,788	117,369	115,272	116,363	115,600	109,213
	2: Program Readiness	R2.01: Program Readiness	21,669	24,955	19,250	19,021	10,116	9,834	18,703	19,342
	4: Material Recycle and Recovery	R4.01: Material Recycle and Recovery	0	0	350	0	0	0	0	0
	5: Containers	R5.01: Containers	636	1,271	589	0	0	0	0	0
	8: Readiness in Technical Base Facilities Construction									
		01-D-126 Weapons Evaluation Test Laboratory Pantex Plant	(2,808)	0	0	0	0	0	0	0
		04-D-101 Test Capabilities Revitalization	(11)	0	0	0	0	0	0	0
		04-D-120 Exterior Communication Infrasture Modernization	(4,215)	0	0	0	0	0	0	0
		05-D-140-020 PED Test Capabilities Revitalization, Phase II	(2,200)	0	0	0	0	0	0	0
		08-D-806 Ion Beam Laboratory Refurbishment	0	24,911	0	0	0	0	0	0
		09-D-404 Test Capabilities Revitalization Phase 2	0	3,104	3,200	0	0	0	0	0
		SNL Total	**169,104**	**182,448**	**127,178**	**136,390**	**125,388**	**126,197**	**134,303**	**128,555**
SRS	1: Operation of Facilities	R1.01: Operation of Facilities	89,772	97,041	98,297	92,722	98,192	98,275	99,154	102,546
	2: Program Readiness	R2.01: Program Readiness	0	100	180	0	0	0	0	0
	3: Special Projects	R3.01: Special Projects	(11)							
	4: Material Recycle and Recovery	R4.01: Material Recycle and Recovery	3,799	3,989	3,215	3,364	3,334	3,325	3,358	3,473
	5: Containers	R5.01: Containers	2,325	2,508	2,085	3,410	2,500	2,811	3,288	3,400
	8: Readiness in Technical Base Facilities Construction		0	0	0	0	0	0	0	0
		SRS Total	**95,885**	**103,638**	**103,777**	**99,496**	**104,026**	**104,411**	**105,800**	**109,419**
Y-12	1: Operation of Facilities	R1.01: Operation of Facilities	231,408	241,845	229,856	220,927	221,292	223,386	224,636	227,321
	2: Program Readiness	R2.01: Program Readiness	0	145	219	0	0	0	0	0
	4: Material Recycle and Recovery	R4.01: Material Recycle and Recovery	46,232	52,322	38,420	40,905	40,561	40,428	40,366	41,747
	5: Containers	R5.01: Containers	10,240	11,226	12,202	11,153	9,799	9,647	9,765	10,099
	6: Storage	R6.01: Storage	26,579	21,882	16,037	15,987	12,358	13,275	14,455	14,950
	8: Readiness in Technical Base Facilities Construction									
		01-D-124 Heu Materials Facility	75,528	0	0	0	0	0	0	0
		02-D-130-080 PED Beryllium Capability Project	(2,421)	0	0	0	0	0	0	0
		05-D-402 Beryllium Capability Project	0	4,865	0	0	0	0	0	0
		06-D-140-050 PED Uranium Processing Facility	38,583	90,622	0	0	50,000	12,728	0	0

* Actual allocation at July 2010, and excluded PDCF

Site Code	Prog	Subprog	Actual Allocation FY2008	Actual Allocation FY2009	Actual Allocation FY2010 *	Presidential Budget Request FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
		06-D-141 Project Engineering & Design (PED) Y-12	0	0	93,940	115,016	0	0	0	0
		10-D-501 Nuclear Facility Risk Reduction	0	0	12,500	0	35,387	17,909	0	0
		11D-802 Uranium Processing Facility	0	0		0	55,400	177,259	270,012	320,000
		Y-12 Total	**426,148**	**422,906**	**403,174**	**403,988**	**424,797**	**494,632**	**559,234**	**614,117**
Other	1: Operation of Facilities	R1.01: Operation of Facilities	36,004	22,963	31,594	40,970	61,160	52,735	27,661	36,028
	2: Program Readiness	R2.01: Program Readiness	11,946	11,516	10,362	19,077	16,000	15,998	18,109	18,728
	3: Special Projects	R3.01: Special Projects	213	29	1	0	0	0	0	0
	4: Material Recycle and Recovery	R4.01: Material Recycle and Recovery	3,560	(1,501)	4,217	10,890	5,655	5,775	4,765	4,927
	5: Containers	R5.01: Containers	1,200	644	1,253	8,774	4,708	5,674	4,888	5,055
	6: Storage	R6.01: Storage	1	0	247	0	0	0	0	0
	8: Readiness in Technical Base Facilities Construction									
		88-D-123 Security Enhanancement Pantex Plant	0	0	(10)	0	0	0	0	0
		01-D-103-010 PED Microsystems & Engineering Science Applications (MESA)	0	0	340	0	0	0	0	0
		03-D-102 National Security Science Building Phase I	0	0	409	0	0	0	0	0
		03-D-103 Project Engineering & Design	4	4	5	0	0	0	0	0
		04-D-103-010 PED NTS Replacement Fire Station No. 1 & No. 2	93	0	0	0	0	0	0	0
		04-D-125 Chemistry & Metallurgy Facility Replacement Project	0	0	2,375	0	0	0	0	0
		04-D-128 TA-18 Mission Relocation Project	413	340	0	0	0	0	0	0
		04-D-103-020 PED High Explosive Pressing Facility	107	(0)	0	0	0	0	0	0
		06-D-141 Project Engineering & Design (PED) Y-12	0	0	60	0	0	0	0	0
		08-D-802 High Explosive Pressing Facility	11,000	8,000	(19,000)	0	0	0	0	0
		08-D-806 Ion Beam Laboratory Refurbishment	0	1	0	0	0	0	0	0
		14-D-MC Mission Consolidation	0	0	0	0	0	0	31,860	19,776
		Other Sites Total	**64,542**	**41,997**	**31,852**	**79,711**	**87,523**	**80,182**	**87,283**	**84,514**
TOTAL	1: Operation of Facilities	R1.01: Operation of Facilities	**1,152,818**	**1,170,888**	**1,179,733**	**1,257,991**	**1,178,512**	**1,129,208**	**1,061,276**	**1,097,791**
	2: Program Readiness	R2.01: Program Readiness	**70,103**	**71,626**	**72,705**	**69,309**	**48,492**	**47,998**	**63,541**	**65,713**
	3: Special Projects	R3.01: Special Projects	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	4: Material Recycle and Recovery	R4.01: Material Recycle and Recovery	**71,570**	**70,334**	**69,224**	**70,429**	**61,678**	**63,673**	**63,386**	**65,554**
	5: Containers	R5.01: Containers	**21,760**	**22,696**	**22,673**	**27,992**	**22,043**	**23,100**	**22,971**	**23,757**
	6: Storage	R6.01: Storage	**34,462**	**31,951**	**24,559**	**24,233**	**19,535**	**21,425**	**21,942**	**22,693**
	8: Readiness in Technical Base Facilities Construction		**270,202**	**309,634**	**204,040**	**399,016**	**542,286**	**555,921**	**693,452**	**722,256**
		TOTAL RTBF	**1,620,924**	**1,677,128**	**1,572,934**	**1,848,970**	**1,872,546**	**1,841,325**	**1,926,568**	**1,997,764**

* Actual allocation at July 2010, and excluded PDCF

Site Code	Prog	Subprog	Actual Allocation FY2008	Actual Allocation FY2009	Actual Allocation FY2010 *	Presidential Budget Request FY 2011	FY 2012	FY 2013	FY 2014	FY 2015
RTBF Totals Exclude PDCF values below:										
LANL	1: Operation of Facilities				23,660					
NS	1: Operation of Facilities				2,650					
SRO	1: Operation of Facilities				19,541					
SRS	1: Operation of Facilities				18,500					
	Total PDCF - Operating				**64,351**					
LANL	8: Readiness in Technical Base Facilities Construction				1,340					
SRS	8: Readiness in Technical Base Facilities Construction				4,981					
SRO	8: Readiness in Technical Base Facilities Construction				24,000					
	Total PDCF - Construction				**30,321**					

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94. Senator INHOFE. Mr. D'Agostino, the fiscal year 2011 President's budget was prepared well in advance of the NPR, the 1251 plan report, and the SSMP. In fact, the budgeting process for fiscal year 2011 was initiated long before a national commitment to modernizing our nuclear weapons infrastructure was certain. And it is apparent, after listening to the testimony of the national laboratory directors last week, that there are uncertainties in the budget plan, especially beyond fiscal year 2011. Dr. Anastasio expressed concerns over pension requirements, for example. Other issues likely exist across the complex. Are you aware of these issues, and do you agree that there is a risk to execution of infrastructure modernization and operations accounts as a result of these issues?

Mr. D'AGOSTINO. Although the budgeting process did start before the NPR was completed, NNSA's fiscal year 2011 budget request was guided by analysis undertaken in the early stages of the NPR process. It also reflects a then-emerging bipartisan national consensus on the need to modernize our nuclear security infrastructure, revitalize the science and technology at its core, and restore the critical human

capital required to support our mission. This emerging consensus was most significantly reflected in the final report of the bipartisan Congressional Commission on the Strategic Posture of the United States (also known as the Perry-Schlesinger Commission), many of whose conclusions were both incorporated into the NPR and accounted for in the fiscal year 2011 President's budget request. As each month passes, our understanding matures as to what is required to execute the NPR requirements. These evolving insights into execution requirements will inform and have an impact on the fiscal year 2012 request and the associated FYNSP.

Relative to managing risk, I would not support a budget that did not ensure the safety, security, and effectiveness of the U.S. nuclear weapons deterrent. If the President's request for fiscal year 2011 and the FYNSP is approved, the Nation will end a multi-year downward funding trajectory and moderate significantly the risks that have had to be absorbed as a consequence. In this regard, the President's commitments to maintaining a strong deterrent, coupled with a major reinvestment strategy, represent a significant turning point for the Nuclear Security Enterprise and will put it on a well-defined path.

95. Senator INHOFE. Mr. D'Agostino, at a minimum, would you agree that the near-term budget in the SSMP and the 1251 plan has risks that could be addressed through additional funding?

Mr. D'AGOSTINO. The fiscal years 2011–2015 FYNSP was shaped by the NNSA's assessment of the ability of the Nuclear Security Enterprise to efficiently ramp-up within the constraints of time, capacity, and capability to spend increased funds to redress mission shortfalls. It reflects what is required and what is executable. The funding requirements identified to date represent the most complete view of our needs. When major efforts called for by the NPR and the President mature further, and validated baseline cost estimates become available, we will revisit our long-term projections.

96. Senator INHOFE. Mr. D'Agostino, do you believe that the 1251 plan is flexible? In other words, does NNSA have the latitude to prepare an fiscal year 2012 budget that exceeds that shown in the 1251 plan and the SSMP, to accommodate these future problems we are hearing about?

Mr. D'AGOSTINO. We continuously evaluate our requirements and needs for resources. The fiscal year 2011 President's budget represents our best current estimate of what funding is required for the next decade to accomplish the requirements of the NPR and support the stockpile described in the section 1251 report. We have already acknowledged the potential for these budget figures to change due to the lack of approved baselines for a number of major facilities such as the UPF and the CMRR Nuclear Facility, and for several LEPs, such as the B61 and W78. As our planning for these and other activities proceeds and our estimates for their costs mature, modifications of the numbers found in the section 1251 report may be necessary.

SCIENCE VS. NEAR-TERM DELIVERABLES

97. Senator INHOFE. Mr. D'Agostino, Los Alamos Director Michael Anastasio testified last week that, "there has been a history of having an imbalance in the program and that we've sacrificed the science to the near-term deliverables." Do you concur that this has happened in the past?

Mr. D'AGOSTINO. Certainly, there have been periods of time in the past when certain aspects of the Nuclear Security Enterprise have not been fully funded as a result of difficult decisions that had to be made to balance near-term needs with long-term imperatives. Nevertheless, we have been successful to this point in sustaining a safe, secure, and effective deterrent. Now, with a new consensus on the future of the stockpile and the Nuclear Security Enterprise that underpins it, as outlined in the NPR, the fiscal years 2011–2015 FYNSP, submitted as part of the President's budget, provides a newly balanced approach that sustains the stockpile, preserves the enabling science, technology, and engineering foundations, and modernizes the necessary infrastructure as envisioned by the President.

98. Senator INHOFE. Mr. D'Agostino, how is this addressed in future budgets?

Mr. D'AGOSTINO. The President's fiscal year 2011 budget proposal initiates a multi-year investment plan with substantial budget increases to extend the life of the stockpile, redress shortfalls for stockpile surveillance activities and stockpile certification through investments in the science, technology, and engineering base, and maintain and modernize the supporting infrastructure. The fiscal years 2011–2015

budget request is necessary and executable based on the requirements and the ability of the Nuclear Security Enterprise to ramp up efficiently within the constraints of time, capacity, and capability to spend increased funds.

99. Senator INHOFE. Mr. D'Agostino, do you agree with Director Anastasio's follow-up statement about the uncertainty of life extension and facility construction costs, "And so you would want to be able to expect that, as those baselines are adjusted to the realities that you have, then you'd like to be able to adjust the budget to that, as well"?

Mr. D'AGOSTINO. Any long-term plan needs to remain flexible as new information and data become available and circumstances change. I believe that our fiscal year 2011 SSMP reflects what is required today and what is executable. As some of our major endeavors outlined in this plan become better defined, and their baseline cost estimates are fully validated, we will revisit our projections. Funding requirements identified to date represent the most complete view of needs until these projects reach validation stages. Future budget requests may need to be adjusted from what we envision today.

100. Senator INHOFE. Mr. D'Agostino, are you prepared to adjust the fiscal year 2012 budget to fully reflect the requirements articulated in the 1251 plan, the SSMP, and other emerging issues in the complex?

Mr. D'AGOSTINO. Yes, if needed to address any unanticipated requirements. The funding requirements identified to date represent the most complete view of needs until we have validated the requirements for B61 and W78 LEPs and the two material processing facilities: the CMRR Nuclear Facility and the UPF. Validated baselines may drive a different out-year view of requirements.

QUESTIONS SUBMITTED BY SENATOR JOHN THUNE

SECTION 1251 REPORT

101. Senator THUNE. Dr. Miller, when you were before this committee in April testifying about the NPR, you stated to me that the 1251 report would provide a specific force structure concerning the triad of nuclear delivery vehicles. However, as I told Secretary Gates when he was here last month, the 1251 report provides a very troubling lack of specificity concerning force structure. Specifically, the administration's factsheet on the section 1251 report explains that the U.S. nuclear force structure under this treaty could comprise up to 420 ICBMs, 240 SLBMs, and 60 bombers. Since deployments at the maximum level of all three legs of the triad under that explanation add up to 720 delivery vehicles, it is mathematically impossible for the United States to make such a deployment and be in compliance with the treaty's limit of 700 deployed strategic nuclear delivery vehicles. Clearly, significant additional decisions need to be made with respect to U.S. force structure under this treaty. Therefore, as I told Secretary Gates last month, I would be very reluctant to cast a vote in favor of this treaty without being fully briefed in more precise detail to my satisfaction about the plans for our nuclear delivery vehicle force structure. Where will the reduction of 20 vehicles come from in order to get to 700 total deployed delivery vehicles required by this treaty?

Dr. MILLER. The reduction of 20 strategic delivery vehicles that you mention will come from ICBMs and/or bombers. The New START treaty allows each side 7 years to reach its treaty-compliant force structure, and to modify it over the life of the treaty. Additional decisions are required to meet the 700 deployed strategic delivery vehicle limit of New START. The final decisions will be made during the 7 years of implementation as the Services study modernization, sustainment, and operation of the nuclear forces.

102. Senator THUNE. Dr. Miller, will the administration provide a classified briefing to concerned Members on the specific planned force structure for deployed nuclear delivery vehicles?

Dr. MILLER. Yes. This classified briefing to Members on the planned U.S. strategic force structure under New START was provided on July 29, 2010.

103. Senator THUNE. Dr. Miller, my understanding is that an ICBM-based PGS platform would be counted against the 700 deployed delivery vehicles. If we decide to develop that system, which of the three legs of the triad would be further reduced to accommodate it?

Dr. MILLER. No decision regarding a PGS system has been taken and cannot be taken before other decisions are made about what type of conventional long-range strike capabilities are useful and available during the period that the New START treaty is in force. A variety of PGS systems are being assessed within the Long-Range Strike Study that is to be completed this fall. The New START treaty provides flexibility to each party to determine its own strategic force structure. As stipulated in the report submitted with the New START treaty pursuant to section 1251 of the National Defense Authorization Act for Fiscal Year 2010, the United States will pursue a future force structure under the New START treaty that will preserve adequate flexibility, including possible accountable CPGS systems currently under study by DOD. In addition, NPR analysis concluded that New START treaty delivery vehicle and strategic warhead limits allowed retention of a margin above the minimum required nuclear force structure for the possible addition of non-nuclear prompt-global strike capabilities (conventionally-armed ICBMs or SLBMs) that would be accountable under the treaty.

If the United States decides to develop a PGS system that would be accountable under New START, the Joint Chiefs and the Secretary of Defense agree that it should involve small numbers of strategic delivery vehicles. Under the baseline plan summarized in the section 1251 report, "New START Framework and Nuclear Force Structure Plans," to Congress, the United States will retain 240 deployed SLBMs, up to 60 heavy bombers, and up to 420 deployed ICBMs under New START. Given the 7-year implementation period of the treaty, and each side's freedom to select its desired force structure and change it over time, decisions about changes involving small numbers of the 700 permitted deployed strategic delivery vehicles should be made after such a decision to deploy these systems.

104. Senator THUNE. Dr. Miller, what is your estimate of how the Russians will configure their strategic forces under New START?

Dr. MILLER. This topic is addressed in the NIE on Monitoring the New START Treaty, which was provided to the Senate on June 30, 2010.

105. Senator THUNE. Dr. Miller, what impact, if any, should that have on the way the President has decided to configure ours?

Dr. MILLER. The United States will continue to configure and posture its forces to maintain the overall force's combined qualities of survivability, responsiveness, flexibility, and effectiveness for both large-scale and limited contingencies. We do not anticipate significant alterations as being necessary due to any Russian changes, because U.S. forces have been developed and deployed to minimize their sensitivity to changes in other nations' force postures.

FUNDING FOR NUCLEAR FORCE STRUCTURE MODERNIZATION

106. Senator THUNE. Dr. Miller, your prepared statement indicates the administration will invest $100 billion over the next decade in nuclear delivery systems. About $30 billion of this total will go toward development and acquisition of a new strategic submarine. According to estimates by STRATCOM, the cost of maintaining our current dedicated nuclear forces is approximately $5.6 billion per year or $56 billion over the decade. This leaves roughly $14 billion of the $100 billion the administration intends to invest—even less if you factor in inflation. This $14 billion is not nearly sufficient to develop and acquire a next generation bomber, a follow-on ICBM, a follow-on ALCM, and develop a CPGS capability. In light of these figures, and the fact that you have yet to make additional modernization decisions, why do you believe $100 billion is a sufficient investment in our delivery systems over the next decade?

Dr. MILLER. The estimated investment of well over $100 billion for strategic delivery vehicles over the next decade, provided in the section 1251 report, represents a best-estimate of costs associated with deployed systems and programs underway and planned. This estimate does not include all of the costs associated with potential future modernization programs. DOD is currently studying long-range strike options, including future bomber requirements and PGS systems, and is also initiating an AoA for a follow-on, nuclear-capable ALCM. Studies regarding a possible follow-on ICBM will be initiated in 2011–2012. Therefore, costs associated with any future program decisions on these systems would be additive to the estimate of well over $100 billion in the section 1251 report.

107. Senator THUNE. Dr. Miller, why didn't you make a decision to pursue these programs in the 1251 report?

Dr. MILLER. As stated in the one-page unclassified summary of the 1251 report, the administration intends to invest well over $100 billion in modernizing strategic delivery systems. Alternatives for a follow-on bomber are being developed in the ongoing Long Range Strike Study for consideration with the President's fiscal year 2012 budget. An AoA on the follow-on nuclear-armed ALCM is currently underway. Although a decision on any follow-on ICBM is not needed for several years, studies to inform that decision will begin in fiscal years 2011 and 2012. The studies and development programs for these systems will consider a range of possible options, with the objective of defining a cost-effective approach that supports continued reductions in U.S. nuclear weapons while promoting stable deterrence.

108. Senator THUNE. Dr. Miller, is there a chance the administration could decide against a new bomber, ALCM, or follow-on ICBM?

Dr. MILLER. While I will not speculate regarding future decisions, the Department and the administration support a strong triad under the New START treaty, and we are committed to making necessary investments for both delivery systems and the nuclear weapons complex. It is worth noting that the investments needed to sustain the U.S. nuclear arsenal and nuclear weapons complex under New START and beyond will be the work of multiple administrations and congresses.

109. Senator THUNE. Dr. Miller, how do we know the administration will pursue these programs?

Dr. MILLER. The NPR, the section 1251 report, "New START Framework and Nuclear Force Structure Plans," to Congress, and our budget requests clearly outline the commitment of the executive branch to sustain an effective nuclear deterrent for the long-term and New START preserves our ability to do so. Today's Minuteman III ICBMs will be sustained until 2030 as directed by Congress, nuclear-capable B–52Hs can be sustained to the 2030s, and B–2As to the 2040s. Analysis of any follow-on ICBM will start in fiscal year 2011. There is time to do this analysis, and given both the resources and military capabilities involved, an imperative to make well-informed decisions at the appropriate time.

DOD plans to invest well over $100 billion over the next decade to sustain existing strategic delivery systems capabilities and modernize strategic systems. The fiscal year 2011 budget request and future year program plans reflect a decision to proceed with the SSBN(X) to replace the current *Ohio*-class strategic submarines starting in the late 2020s, to sustain Minuteman III ICBMs until 2030 as directed by Congress, and to sustain dual-capable B–52H and B–2 bombers until at least 2035 and 2040, respectively. The DOD is currently conducting an AoA for the next ALCM, and will initiate study of options for a follow-on ICBM in 2011–2012.

Finally, DOD is currently studying the appropriate long-term mix of long-range strike capabilities, including alternatives for a follow-on heavy bomber as well as non-nuclear PGS systems, in follow-on analysis to the 2010 Quadrennial Defense Review and the NPR; the results of this ongoing work will be reflected in the Department's fiscal year 2012 budget submission.

NUCLEAR BOMBER FORCE

110. Senator THUNE. Dr. Miller and General Chilton, according to the most recent briefs I have seen, DOD expects the current nuclear bomber force to remain in service through 2040. Thirty more years is a long time for a bomber that was built 50 years ago. Proponents of this plan say they can last that long with upgrades. However, physically remaining in service is significantly different than remaining survivable in a future high threat combat scenario. Since the NPR recognizes the need for a triad, what is your plan to replace the aging nuclear bomber force so that the nuclear triad stays survivable in the future?

Dr. MILLER. As outlined in the NPR, the Department will maintain a nuclear triad under New START. Accordingly, the Air Force will retain the B–52 in its inventory through 2035 and beyond to continue to meet both nuclear and conventional mission requirements and is investing approximately $14.3 billion for fiscal year 2010 through fiscal year 2020 to modernize and sustain the B–52. In addition, DOD will invest approximately $12.5 billion for fiscal year 2011 through fiscal year 2020 to sustain and modernize the B–2 bomber. These enhancements will help sustain its survivability and improve mission effectiveness. Further, the Air Force is commencing an AoA on the long-range standoff cruise missile while DOD completes its study on long-range strike systems that includes consideration of alternatives for a future bomber in time to inform the fiscal year 2012 President's budget.

General CHILTON. I agree that the capabilities of the triad need to be sustained and recapitalized. To that end, STRATCOM is supporting the DOD's studies to identify the investments necessary for long range strike. The Long Range Strike Front End Assessment will help identify the investments necessary to field the family of systems necessary to retain effective deterrent and strike capabilities for the future. In addition, STRATCOM is actively supporting the Long-Range Stand-Off AoA to provide for the replacement of the current ALCM. The current plan to develop the next generation cruise missile along with the sustainment of the current ALCM, and warhead to the year 2030 will allow for a smooth transition in the mid-2020's timeframe. Finally, with the expected retirement of the B–52 in the 2040 timeframe, the decision for its recapitalization will need to be addressed in the early to mid 2020s.

DELIVERY VEHICLE THRESHOLDS

111. Senator THUNE. Dr. Miller and General Chilton, during testimony before this committee last July, General Cartwright expressed the view that he would be very concerned about the viability of the triad if we got below 800 deployed delivery vehicles. The New START establishes a level of 700 deployed strategic delivery vehicles. I note that General Cartwright stated this concern after the NPR team had already conducted detailed analysis in the Spring of 2009 to determine negotiating positions in the New START on an appropriate limit on strategic delivery vehicles. Why are you not concerned, given that this number is 100 below General Cartwright's comfort level?

Dr. MILLER and General CHILTON. The decision to agree to a limit of 700 deployed strategic delivery vehicles did not result from a change in the security environment, but from an updated assessment of U.S. force deployment options in the light of progress achieved in the negotiations. The testimony you refer to in your question was delivered before the definitional difference between deployed and nondeployed ICBM and SLBM launchers had been agreed, and before the sides had agreed to the conversion of individual SLBM launchers on strategic submarines. Thus, the 800 deployed delivery vehicles figure referred to in the testimony would, for example, have included U.S. strategic delivery systems that will now count as nondeployed (e.g., two SSBNs in overhaul). Once these provisions were agreed, it became clear that we could sustain a strong triad and meet deterrence and hedging requirements within a limit of 700 deployed ICBMs, deployed SLBMs, and deployed (nuclear-capable) heavy bombers. The U.S. senior military leadership has stated its support for this result.

112. Senator THUNE. Dr. Miller and General Chilton, if the former commander of STRATCOM was concerned about reducing our delivery vehicles below 800 at a time that was well after the NPR analysis was completed, shouldn't we be concerned as well?

Dr. MILLER and General CHILTON. No, because the decision to agree to a limit of 700 deployed strategic delivery vehicles did not result from a change in the security environment, but from an updated assessment of U.S. force deployment options in the light of continued progress in the negotiations. The testimony you refer to in your question was delivered before the definitional difference between deployed and nondeployed ICBM and SLBM launchers had been agreed and before the sides had agreed to the conversion of individual SLBM launchers on strategic submarines. Thus, the 800 deployed delivery vehicles figure referred to in the testimony would, for example, have included U.S. strategic delivery systems that will now count as nondeployed (e.g., two SSBNs in overhaul). Once these provisions were agreed, it became clear that we could sustain a strong triad and meet deterrence and hedging requirements within a limit of 700 deployed ICBMs, deployed SLBMs, and deployed (nuclear-capable) heavy bombers. The U.S. senior military leadership has stated its support for this result.

113. Senator THUNE. Dr. Miller and General Chilton, what were the assumptions going into the negotiations that drove our level of acceptance to reduce these numbers?

Dr. MILLER. General Cartwright, as well as the rest of the Joint Chiefs of Staff, the Secretary of Defense, and both of us support the New START treaty including the limit of 700 on deployed strategic delivery vehicles. The New START limit will allow the United States to retain all 14 current SSBNs, while reducing the number of accountable SLBM launchers by 96 relative to the previous START treaty's counting rules (from 336 to 240). The United States will be able to do this by taking advantage of the treaty's provisions by converting or eliminating 56 SLBM launchers

and not deploying SLBMs in an additional 40 launchers. In addition, the United States will convert a subset of the B–52H bombers to a conventional-only role, so that they are no longer accountable under the treaty. By taking advantage of these treaty provisions, the United States will have to eliminate or keep in a nondeployed status only 30 to 50 ICBM launchers of the 450 Minuteman III active silos today. In sum, the decision to agree to a limit of 700 deployed strategic delivery vehicles resulted from an updated assessment of U.S. force deployment options in the light of different counting rules under New START.

General CHILTON. The NPR conducted a detailed analysis of potential reductions in strategic weapons, including delivery vehicles, which would allow the U.S. to sustain stable deterrence at lower force levels. This analysis assumed negotiated limits with Russia. The analyses took into account the nuclear arsenals of other declared nuclear weapon states, as well as the nuclear programs of proliferant states. The conclusion from the NPR analyses was that stable deterrence could be maintained and current planning guidance met at lower strategic delivery vehicle levels. These results formed the basis for U.S. negotiations with Russia.

CONFLICTING MESSAGES TO THE AIR FORCE

114. Senator THUNE. Dr. Miller and General Chilton, in an effort to build up the nuclear enterprise, the Air Force recently accomplished an extensive restructuring which included, among other things, adding a new Global Strike Command, adding an additional B–52 nuclear capable bomber squadron, and multiple changes to procedures and testing. This was all part of a tremendous and ongoing effort to reinvigorate the nuclear enterprise. However, by ratifying this treaty it would seem we are providing conflicting guidance to our nuclear force and telling them we want to draw down and scale back the nuclear mission. For example, this treaty would specifically reverse the direction the Air Force was just given to build up the B–52 nuclear capability by cutting the number of nuclear capable B–52s. Are you at all worried about undercutting the Air Force's improved emphasis on the nuclear mission after the problems the Air Force had with the nuclear mission a few years ago?

Dr. MILLER and General CHILTON. No. The conclusion of the New START treaty in no way reduces the emphasis we will place on the Air Force nuclear enterprise. As reported in the section 1251 report, under New START we plan to maintain up to 60 deployed nuclear capable heavy bombers as well as additional nondeployed heavy bombers. New START will not require us to reduce the number of bomber-delivered nuclear weapons in the U.S. inventory. The NPR recognized that first, this capability provides a rapid and effective hedge against technical challenges with another leg of the triad, as well as geopolitical uncertainties; and second, nuclear capable bombers are important to extended deterrence of potential attacks on U.S. allies and partners. Unlike ICBMs and SLBMs, nuclear capable heavy bombers can be visibly forward deployed, thereby signaling U.S. resolve and commitment in crisis.

DOD plans to spend more than $4 billion over the next 5 years to support upgrades to the B–2 stealth bomber. These enhancements will help sustain survivability and improve mission effectiveness. In regard to the B–52 bomber, the Air Force will conduct an assessment of alternatives to inform decisions in fiscal year 2012 about whether and if so how to replace the current ALCM, which will reach the end of its service life later in the next decade. The future of the heavy bomber leg will be considered in the ongoing study on long range strike, which will be completed in time to inform the fiscal year 2012 President's budget.

MISSILE DEFENSE

115. Senator THUNE. Dr. Miller, the New START is supposed to be about strategic offensive nuclear arms. Yet, taken together, the treaty's preamble and Russia's unilateral statement on the subject strongly suggest Russia will threaten to withdraw from the treaty should the United States expand its current missile defense capabilities. Moreover, Article V of the treaty places binding limitations on U.S. missile defenses, the first since the United States lawfully withdrew from the Anti-Ballistic Missile (ABM) treaty. What are your views of including language in the Senate Resolution of Ratification confirming the administration's characterization of the treaty that there are no constraints in the treaty (other than Article V) on the development or deployment of U.S. missile defenses?

Dr. MILLER. As I and other administration officials have testified, the prohibition on the conversion of missile defense interceptors to offensive launchers set forth in Article V will have no operational impact on U.S. missile defense efforts. As Lieutenant General O'Reilly has testified, the MDA has never had any plans to convert

additional ICBM silos to missile defense interceptor launchers. Doing so would be much more expensive than building smaller GBI silos from scratch. Moreover, as Lieutenant General O'Reilly has also stated, newly-built GBI silos are easier both to protect and maintain.

Executive branch officials have also testified that, aside from Article V(3), the treaty contains no restraints on the development or deployment of U.S. missile defenses.

The administration is engaged in discussions with the Senate Committee on Foreign Relations about the resolution of advice and consent that will be presented to the committee for its consideration.

116. Senator THUNE. Dr. Miller, does the New START establish a new precedent for limiting missile defenses despite our withdrawal from the ABM treaty? Why or why not?

Dr. MILLER. No. The New START treaty does not constrain the United States from deploying the most effective missile defenses possible, nor does it add any additional cost or inconvenience to the implementation of U.S. missile defense plans. In addition, the treaty does not contain any constraints on the testing or development of current or planned U.S. missile defense programs. The only constraints on missile defense in the New START treaty are the prohibitions in Article V on the placement of missile defense interceptors in converted ICBM or converted SLBM launchers and vice versa. However, this constraint has no effect on current or planned U.S. missile defense programs given the higher costs of such a conversion option vice simply constructing new missile defense interceptor launchers and the operational challenges associated with such placements.

For these reasons, the New START treaty does not establish any new precedent for limiting missile defenses.

[Whereupon, at 11:44 a.m., the committee adjourned.]

INDEPENDENT ANALYSES OF THE NEW STRATEGIC ARMS REDUCTION TREATY

TUESDAY, JULY 27, 2010

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met, pursuant to notice, at 9:34 a.m. in room SD–G50, Dirksen Senate Office Building, Senator Carl Levin (chairman) presiding.

Committee members present: Senators Levin, Reed, Hagan, Goodwin, McCain, Inhofe, Sessions, Chambliss, Thune, Brown, and Collins.

Committee staff members present: Richard D. DeBobes, staff director; and Leah C. Brewer, nominations and hearings clerk.

Majority staff members present: Madelyn R. Creedon, counsel; and Richard W. Fieldhouse, professional staff member.

Minority staff members present: Christian D. Brose, professional staff member; Daniel A. Lerner, professional staff member; and David M. Morriss, minority counsel.

Staff assistants present: Jennifer R. Knowles, Christine G. Lang, and Hannah I. Lloyd.

Committee members' assistants present: Carolyn A. Chuhta, assistant to Senator Reed; Roger Pena, assistant to Senator Hagan; Anthony J. Lazarski and Rob Soofer, assistants to Senator Inhofe; Lenwood Landrum and Sandra Luff, assistants to Senator Sessions; Clyde A. Taylor IV, assistant to Senator Chambliss; Jason Van Beek, assistant to Senator Thune; Scott Clendaniel, assistant to Senator Brown; and Ryan Kaldahl, assistant to Senator Collins.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Chairman LEVIN. Good morning, everybody.

Over the course of the last month or so, the Senate Armed Services Committee has held three hearings and one briefing on various aspects of the New Strategic Arms Reduction Treaty (START), including how it will be implemented by the U.S. military, how it will be monitored and verified, and how the nuclear weapons complex will be utilized to maintain a smaller stockpile. We will have what will probably be our final hearing this Thursday, with Assistant Secretary of State Rose Gottemoeller, the chief negotiator of the New START treaty, and Dr. Edward Warner, the Secretary of Defense's representative to the New START treaty talks.

The previous hearings, as well as the hearing this Thursday, have all been held with various representatives of the executive branch, to better understand the New START treaty, and how the

New START treaty will be implemented—tasks which the executive branch will be carrying out.

Today we welcome a panel of nongovernmental witnesses. We look forward to hearing their independent views on the New START treaty. While none of our witnesses this morning are currently serving in the executive branch, each of them has extensive previous experience, either with or in the executive branch. They represent different views of the New START treaty. We welcome that, and we welcome each of our distinguished witnesses this morning.

Dr. John Foster has had a long and distinguished career in science and industry. He helped establish the Lawrence Livermore National Laboratory in 1952, and was director of the laboratory from 1961 to 1965. From 1965 to 1973, he was the Director of Defense Research and Engineering at the Department of Defense (DOD). He retired as Vice President of Science and Technology at TRW, Inc. in 1988, and served on TRW's board of directors until 1994. Dr. Foster has served on a variety of DOD advisory boards and was the Chairman of the Defense Science Board from 1990 to 1993. He was a member of the Strategic Posture Commission and is currently a member of the advisory board for the Defense Advanced Research Projects Agency.

Frank Miller retired in 2005 with over 30 years of government experience, including 22 of those years at DOD. He served on the National Security Council (NSC) staff as a Special Assistant to the President and Senior Director for Defense Policy and Arms Control under President George W. Bush. Mr. Miller was also the Principal Deputy Assistant Secretary for Strategy in Threat Reduction, twice served as Acting Assistant Secretary of Defense for International Security Policy, and worked on both the START I and START II treaties. Mr. Miller serves on the advisory group for the U.S. Strategic Command (STRATCOM), and is senior associate at the Center for Strategic and International Studies.

Ambassador Steven Pifer spent 26 years with the Department of State and has extensive experience in Russia and the states of the former Soviet Union. He is a former Ambassador to Ukraine, served as the Special Assistant to the President and Senior Director for Russia, Ukraine, and Eurasia on the NSC staff, under President Clinton, was a Special Assistant to Ambassador Paul Nietze, and worked on the Intermediate-Range Missile Treaty negotiations. Ambassador Pifer is currently a Senior Fellow and Director of the Arms Control Initiative at the Brookings Institution.

Dr. Keith Payne is head of the Graduate Department of Defense in Strategic Studies at Missouri State University, Washington Campus, and President and CEO of the National Institute of Public Policy. From 2002 to 2003, he served as the Deputy Assistant Secretary of Defense for Forces Policy. Dr. Payne has served on a number of advisory boards, and is currently a member of the policy panel of the advisory group for the STRATCOM, and was also a member of the Strategic Posture Commission. He has written extensively on defense and foreign policy issues, including proliferation, arms control, and missile defense.

Before we begin, I'd like to welcome Senator Carte Goodwin. He is the newest member of the committee. It's a pleasure to have you

here, to continue a long tradition—a three-decades-old tradition of representing the people of the State of West Virginia on the Senate Armed Services Committee.

Senator Byrd sat right here for many, many decades. We miss him, but we welcome you and welcome you very warmly. You will find that this committee strives to approach these issues on a bipartisan basis, and I know that you're going to fit right in with that spirit. Welcome.

Chairman LEVIN. Senator McCain.

STATEMENT OF SENATOR JOHN MCCAIN

Senator MCCAIN. Thank you, Mr. Chairman.

I also welcome our new colleague from the State of West Virginia. I want to thank our distinguished witnesses for their service to our Nation, and joining us today.

To date, our hearings on the New START treaty have exclusively been the views of administration officials. Today's hearing will feature the views of independent expert witnesses who can provide a different perspective on the New START treaty, and the national security implications of this agreement and its supporting documents.

Many of us have concerns about the New START's methods of verification, its constraints on ballistic missile defense (BMD), and the accompanying plan for modernization of both the nuclear stockpile and our nuclear delivery vehicles. This hearing offers a chance to consider these concerns in a different light.

Last year, the Perry-Schlesinger Strategic Posture Commission alerted Congress to the dire need for modernizing the nuclear weapons complex. At that time, the Commission stated that while the National Nuclear Security Administration (NNSA) has a reasonable plan, they lack the necessary funding to implement it properly. The administration's 10-year modernization plan that accompanied the New START treaty, also referred to as the 1251 Report, was expected to address these funding concerns. However, many are questioning whether the President's plan is adequate to meet our full recapitalization and modernization needs.

I was particularly concerned by the testimony this committee received from the director of the Los Alamos National Laboratory regarding his "fear that there's already a gap emerging between expectations and fiscal realities," and his concern that "much of the administration's planned funding increase for weapons activities do not come to fruition until the second half of the 10-year period." I'll be interested in hearing from our witnesses today if they feel the administration's 10-year plan for modernization commits the necessary resources in the appropriate timeframe to reconstitute the weapons complex.

Another significant concern raised in the Strategic Posture Review involved the ability to attract and retain a new generation of scientists and engineers to sustain the safety, security, and reliability of the nuclear weapons stockpile. During the committee's hearings on the Nuclear Posture Review (NPR), and more recently, during our hearing with the lab directors, concerns were raised about the administration's decisions to discourage the replacement of warheads as an option for life-extension programs.

Dr. Foster, you, along with nine other former lab directors, sent a letter to the Secretary of Defense and the Secretary of Energy stating that you believe this more limited approach to life extension programs constitutes a, "higher bar that will stifle the creative and imaginative thinking that typifies the excellent history of progress and development at the national laboratories." I look forward to hearing more about whether curtailing the replacement of warheads could result in an impending brain drain from our nuclear complex, while harming the prospects for recruiting new talent and the ability to design, manufacture, field, and evaluate nuclear weapons in our overall deterrence posture.

Many of us also remain concerned about the New START treaty's references to missile defense. While some have argued that New START will not constrain us from developing and deploying effective missile defenses, facts are stubborn things. In the New START text, not just the preamble, but article 5 of the treaty itself, includes a clear, legally binding limitation on our missile defense options. While this limitation may not be a meaningful one, it is a limitation. Such limitations could fuel Russia's clear desire to establish unfounded linkages between offensive and defensive weapons, while diverting attention away from negotiating reductions to the large Russian stockpile of tactical nuclear weapons.

The significant imbalance in tactical nuclear weapons has a far greater strategic destabilizing impact than defensive systems, like missile defense. Though the administration apparently relented to Russian pressures to acknowledge an interrelationship between strategic offensive and defensive weapons, it ignored the far more significant interrelationship—that between strategic and nonstrategic offensive weapons. Russia has a 10-to-1 advantage over the United States in tactical nuclear weapons.

Dr. Payne, you have stated publicly that quote, "The great locus of concern about Russian nuclear weapons lies in its large arsenal of tactical nuclear weapons." I look forward to hearing more about the significant and destabilizing danger that this imbalance in tactical weapons could pose, and what steps the United States must take, in the near future, to address this threat.

Our consideration of the New START treaty is a serious responsibility, and I thank all of you for joining us today to help add to our understanding of it.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator McCain.

Senator Nunn, who's the former chairman of this committee, and well known to all of us who had the opportunity to serve with him, has submitted a statement, and we will make that part of the record.

[The information referred to follows:]

PREPARED STATEMENT BY FORMER SENATOR SAM NUNN

I want to thank both the distinguished chairman and ranking member of the Senate Armed Services Committee, Senator Carl Levin and Senator John McCain, for the opportunity to present my views on the New START agreement to the committee. I have always believed the national security of the United States—in particular as it relates to questions surrounding nuclear weapons and arms control—is by definition a nonpartisan issue, and should be approached that way by the executive and legislative branches of our government. The two of you are setting an example in this regard, and I commend your leadership in scheduling hearings on the

New START agreement with a distinguished group of administration officials, former officials, and experts, and for your thorough and expeditious review of the New START agreement.

As this committee knows, the potential use of nuclear weapons is one of the gravest dangers the world faces. Working with former Secretaries of State George Shultz and Henry Kissinger and former Secretary of Defense Bill Perry, the four of us have called for U.S. leadership to help build a solid consensus for reversing reliance on nuclear weapons globally as a vital contribution to preventing their proliferation into potentially dangerous hands, and ultimately ending them as a threat to the world. One important step involves the renewal of nuclear arms talks and cooperation between the United States and Russia and the conclusion of the New START treaty.

In considering this treaty, the bottom line for me is this: the nuclear threat has fundamentally changed since the end of the Cold War. The threat of nuclear terrorism is now urgent, fueled by the spread of nuclear weapons, materials, and technology around the world. While this is a global issue, there are two countries—the United States and Russia—whose cooperation is absolutely essential in order to successfully deal with a wide range of security issues, including current nuclear threats. Specifically, cooperation is essential for:

1. Securing nuclear materials and preventing catastrophic terrorism
2. Energy security
3. Euro-Atlantic security
4. Stemming the spread of nuclear weapons to North Korea and Iran
5. Addressing deep instability in Afghanistan and conflict in the Middle East
6. Preventing conflict in Central Asia, and
7. A more stable and safer non-nuclear Korean peninsula.

In each of these cases, cooperation between the United States and Russia is not just important, it is vital. With New START, our odds of establishing a more cooperative relationship with Russia go up, and the odds of a nuclear weapon being used go down.

It is also essential to note that with the expiration of the 1991 START Treaty last December, there is no longer any agreement in place for monitoring strategic nuclear forces on both sides. The New START treaty's provisions for data exchange and on-site inspection of strategic nuclear forces will provide unique and valuable information on Russian nuclear capabilities that we will not have if we do not ratify this treaty. This information remains vitally important to the security of the United States and will increase transparency and confidence on both sides, thus enhancing predictability and stability.

I know some have expressed concerns that the New START treaty might undermine America's missile defense program. They cite the preamble recognizing the interrelationship between strategic offensive and defensive arms; or the treaty's prohibition on converting or using existing strategic launchers for placement of missile defense interceptors; or Russian assertions of a right to withdraw from the treaty. Informed by my own review of the treaty text and the detailed testimony presented on this topic before the Senate, I am reassured that New START is not a threat or a barrier to America's missile defenses, and I see little value in encouraging the Russians to think otherwise.

Another issue of concern to this committee and the Senate is the question of maintaining the safety, security, and reliability of our own nuclear weapons. In my view, nothing in the New START agreement would in any way inhibit the ability of the United States to make the necessary investments in our nuclear weapons infrastructure and the three national nuclear weapons laboratories. Indeed, we must proceed on both fronts: reducing nuclear dangers by maintaining our deterrence, and reducing nuclear dangers through arms control. The New START agreement is consistent with this framework.

New START has been forcefully advocated by Secretary of State Hillary Clinton, Secretary of Defense Robert Gates, and the Joint Chiefs of Staff. In addition to Secretaries Shultz, Perry, and Kissinger, the treaty has been endorsed by former Secretary of State James Baker, former Secretary of Defense James Schlesinger, and former National Security Advisors Brent Scowcroft and Steve Hadley, who served under Presidents George H.W. Bush and George W. Bush, respectively.

I urge the Senate to give its advice and consent to ratification of New START as early as is feasible. I also urge the two governments to begin planning now for even more substantial reductions in the future involving all nuclear weapons, strategic and tactical, deployed and non-deployed.

Mr. Chairman, Senator McCain, and members of the committee, I know how important the Senate's role is in treaty ratification, and I also recognize the imperative

of strong committee leadership. I am grateful for the opportunity to present my views to the committee and the Senate.

Chairman LEVIN. We will call on our witnesses. I think we will call on you in alphabetical order. I don't have any more logical way to do it. So we will start with Dr. Foster, then Mr. Miller, Dr. Payne, and Ambassador Pifer.

Dr. Foster.

STATEMENT OF DR. JOHN S. FOSTER, JR., INDEPENDENT CONSULTANT

Dr. FOSTER. Chairman Levin, Senator McCain, distinguished members of the Senate. Thank you, Mr. Chairman. I appreciate the invitation to appear before the committee to discuss New START treaty.

Since you have been provided a copy of my prepared testimony, Mr. Chairman, I propose to take just 4 or 5 minutes to highlight my views and suggestions.

Chairman LEVIN. That would be fine. All the statements will be made part of the record, in full.

Dr. FOSTER. President Obama has reenergized U.S. policy to work toward a nuclear-free world. Recognizing that the achievement of that situation will likely take many decades, the President has required the maintenance of our nuclear deterrent for the foreseeable future. If we are able to accomplish that, it will be a most welcome turning point from the general course that we have been on for the last two decades.

The administration has made its case to support ratification of New START, and numerous concerns have been raised. They range from failure of the Soviet Union and Russia to comply with past treaties, to concerns about intercontinental ballistic missiles (ICBMs) on trains, ships, and aircraft, the omission of tactical nuclear weapons, linkage of strategic offense and defensive systems, provisions for verification, et cetera. To reach a judgment on ratification of New START requires that the Senate examine the pros and cons of each concern. That's the purpose of these hearings.

Of those concerns, I single out just one: verification. I find it to be inadequate for the next 10 years, in part, because New START's provisions are significantly less demanding than START I, and if the Russian economy supports the programs they plan to deploy from their new triad, we will not have in place the monitoring capability that may be necessary.

For example, we no longer have the monitoring station at the Volkinsk plant that was assembling the missiles, and that we don't have the degree of missile telemetry that was permitted under START I. Then there's the reduction in site visits. These limitations could become serious over the next 10 years.

I realize there are now fewer facilities, 24-hour notice on a new missile to emerge from the plant, and we can count warheads on deployed missiles, and so on. But, there are no limitations on new missile characteristics, and more telemetry would be very important if, for example, we need to defend our ICBMs.

Next, the limitations on deployed delivery vehicles to 700 and warheads to 1,550. Secretary Gates and General Chilton have testified that nuclear deterrence can still be maintained, subject to Rus-

sian compliance and no requirements for force increases. Things could change a lot over the next 10 years. I urge that we not only maintain the current strategic force and its infrastructure, but complete current studies of possible future systems and initiate hedge programs so that we can be in a position to produce a modern triad, as the service lives of current systems run out.

The committee has heard from the three laboratory directors regarding the recent decline in congressional support for NNSA's nuclear warhead programs and supporting infrastructure, particularly in the last 5 years. Stockpile surveillance is behind schedule, laboratory experiments, tests, and personnel have been reduced. Important new facilities planned for Los Alamos in New Mexico and Oak Ridge in Tennessee, but there is concern that the costs of the multibillion-dollar facilities could increase substantially over the estimates submitted in the fiscal year 2011 through 2015 budgets. Should that occur, it could again force reductions in warhead surveillance, delays in life extension programs, reduction in lab experiments and personnel.

To reduce the likelihood of that happening, I have suggested that the nuclear weapons council consider initiating a thorough scrub of the necessary capabilities and construction costs to ensure that safety, security, programmatic risks and costs are effectively managed.

Certification: Congress has directed that each year the laboratory directors, Commander of STRATCOM, and the Secretaries of Defense and Energy submit letters to the President certifying as to the safety and reliability of the nuclear deterrent in the absence of nuclear testing. However, in the past few years, the directors have expressed increasing concern in their ability to certify the stockpile, in part, because the reduced funding of the Stockpile Stewardship Program has reduced the information needed to perform that certification.

I have urged the laboratory directors to assess the minimum conditions under which they would have the knowledge necessary to consider certifiability of the stockpile.

Safeguards: Congress, in approving and ratifying past agreements and treaties have established safeguards which helped us to meet our commitments. In considering New START, I urge the Senate to again specify safeguards which provide for an annual, independent assessment of DOD's nuclear delivery programs, NNSA's warhead programs, and the sufficiency of both supporting infrastructures.

Mr. Chairman, thank you very much.

[The prepared statement of Dr. Foster follows:]

PREPARED STATEMENT BY DR. JOHN S. FOSTER, JR.

Chairman Levin, Ranking Member McCain, and other members of the committee, I am honored to be invited to present a very brief summary of my views on several aspects of the New Strategic Arms Reduction Treaty (START) treaty and then attempt to answer any questions you may have.

NUCLEAR DETERRENCE

As the committee knows well, the purpose of our strategic nuclear deterrent is to deter the use of nuclear weapons against the United States and our allies, and large scale war, and not to fight a nuclear war. But, to be effective it needs to insure that no potential nuclear adversary could believe that they could gain more than

they would lose by an attributable attack on the United States or on those supported by our extended deterrent. The existence of dynamic military delivery and nuclear warhead infrastructures is also an important deterrent.

The administration has made its' case to support ratification of New START and concerns have been raised regarding such issues as MIRV'd payloads, missiles on ships, aircraft and trains, the omission of Russian tactical nuclear weapons, linkage of Russian offensive missiles to our missile defense, also the counting of our possible Conventional Prompt Global Strike, visibility of changes negotiated by the Bilateral Consultative Commission, provisions for verifications, etc. These concerns raise important issues for U.S. security. During the next few months the Senate will have an opportunity to carefully examine these concerns and the administration's responses prior to providing its advice and consent. At this time I'll just make a brief comment on the verification provisions.

VERIFICATION

The importance and value of verification increases as the negotiated number of weapons decreases. New START verification, in my judgment, is inadequate to give us the depth of knowledge that we will need, given Russian military doctrine and modernization programs. I assume we all believe in the necessity to "Trust but Verify". Unfortunately, past compliance by the Soviet Union/Russia and our inability or unwillingness to force compliance does not provide a firm foundation for this treaty. Second, the provisions in New START are significantly less demanding than START I. The provision for visits (up to 18 per year) is substantially less than we found necessary under START I. Third, a monitoring station at the Russian assembly plant at Volkinsk is no longer permitted and missile telemetry, which we have found very useful, is greatly reduced. These limitations could become serious over the next 10 years if the Russian economy and priority to strategic nuclear systems ramp up their modernization program. I understand that currently there are fewer facilities, that we can expect 24-hour notice of an identified missile leaving the assembly plant and that we can count the number of warheads on each deployed missile. But there are no limitations on new missile characteristics and more telemetry would be very important if we chose, for example, to defend our intercontinental ballistic missiles (ICBMs).

Given this situation, and based on our perception of Russia's intentions, I believe that more visibility is needed. We need to be alert to the fact that intentions can change much more rapidly than capabilities. Hence, I urge that we continue to explore verification approaches.

New START would limit U.S. and Russian deployed delivery vehicles to 700 and nuclear warheads to 1,550. For our current situation General Chilton and Secretary Gates have testified that with those numbers and some specific assumptions regarding our future needs, nuclear deterrence can still be maintained. But things do change. In the future even smaller numbers could possibly still be effective or larger numbers of offensive launchers and or defenses might be needed. Our nuclear enterprise must be resilient to such potential changes. For example, we should maintain a Triad because we depend on the special and different characteristics of each leg to provide retaliatory capability that is credible to the attacker. The heavy bombers provide for communication of intent and resolve and when generated are survivable. ICBMs provide responsive command and control and ballistic missile submarines, survivability. It is important to understand that the need for a Triad is not dependent on numbers. But if the numbers of delivery vehicles were to change, then the strategy and its associated targeting would have to change.

A NUCLEAR TURNING POINT?

President Obama's commitment to maintain nuclear deterrence for the foreseeable future, the Department of Defense's (DOD) NPR, and the fiscal year 2011–2015 budgets all mark a possible turning point in plans from the 20-year decline of our strategic nuclear deterrent, its maintenance, and supporting infrastructure.

- The venerable B–52 and aging B–2 heavy bombers are to receive upgraded communications, flight systems, radar and structural improvements. Funds are also included to define a follow-on heavy bomber. The Air Force also plans to study the need to develop an advanced, reliable strategic nuclear cruise missile for heavy bombers to replace the aging ALCM.
- The Minuteman III ICBM's are to be upgraded and maintained until 2030. Planning is also underway for a follow-on ICBM.
- The service life of the Navy's submarine leg of the Triad and its ballistic missiles are planned to be upgraded and extended to 2042. To provide a re-

placement of the Trident submarine, the Navy is designing a new submarine and follow-on missiles.

Preliminary estimates of costs for future strategic systems have led Secretary Gates to request the services to find ways to substantially reduce their costs. One attractive opportunity to reduce missile costs would be for the Air Force and Navy to agree on common missile/warhead interfaces, common booster missile production facilities and depot level support capabilities.

But for the trend in our nuclear deterrent to turn around will require that Congress support the DOD strategic program requests. We also need to recognize that the nuclear weapons complex is an essential component of DOD's capability. History tells us that it will require an extraordinary sustained commitment to the long-term needs to maintain the strategic deterrent. While we see an encouraging focus now, it will take continuing attention on the part of Congress and successive administrations to keep it on track. Beyond maintaining our current aging deterrent we need to not only complete the current studies but to start programs that will position us to deploy modern replacement systems when needed. I suggest that the Senate request a policy commitment from the administration to replace our aging force structure with modern systems.

TURNING POINT FOR NUCLEAR WARHEADS

The fiscal year 2011–2015 budgets would provide increased support for warhead life extension programs, warhead surveillance and mandatory fixes and also to boost computing, science, engineering and laboratory experiments. In implementing the life extension programs it is important that the laboratories are free to pursue approaches that, in their judgment, best provide for safety and reliability. In addition, budgets are estimated for new facilities, in particular CMRR at Los Alamos for research on plutonium and UPF, a uranium parts manufacturing plant at Oakridge in Tennessee. The committee should understand that at present we do not yet have good cost estimates for the new facilities, each of which are expected to cost billions of dollars. There is general concern that their costs will exceed the preliminary estimates and that may force major reductions in other NNSA nuclear weapons activities to include warhead surveillance, the life extensions and science programs. Such a development would turn us back into the situation we have faced for the last 5 years. I have suggested that the Nuclear Weapons Council initiate a thorough scrub of the necessary capabilities and construction costs for the new facilities to insure that safety, security, programmatic risks and costs are effectively managed.

CERTIFICATION

Congress has directed that each year the Laboratory Directors, Commander STRATCOM, and the Secretaries of Defense and Energy submit letters to the President certifying as to the safety, security and reliability of the nuclear deterrent in the absence of nuclear testing. However, in prior years, the Laboratory Directors have expressed increasing concerns because of both the cumulative changes to the warheads from their life extensions and reductions in warhead surveillance and reduced funding of the Stockpile Stewardship Program which has reduced the information they need to perform the annual assessments as to certifiability of the safety, security and reliability of the stockpile. One can hope the lesson of the last 5 years will be learned and the necessary surveillance, lab experimentation etc., will be increased and sustained for the foreseeable future. I have urged the laboratory Directors to assess the minimum conditions under which they would have the knowledge necessary to consider the certifiability of the stockpile without nuclear testing, eg., surveillance, SFI's, hydro-experiments, training on new nuclear device designs through to prototypes, etc.

Whether or not we really are at a turning point regarding the maintenance and modernization of our strategic nuclear deterrent, extended deterrent and infrastructure depends on whether or not we initiate and adequately fund programs recommended by recent studies and reports.

SAFEGUARDS

Prior to approving/ratifying past agreements and treaties; the atmospheric and threshold test bans, START I and the Moscow Agreement, Congress established, for different objectives, the activities necessary to meet the Nation's commitments. The existence of those safeguards proved to be an important factor in ensuring that subsequent administrations and Congress provided the flexibility and resilience to respond to our uncertain future. I urge that in considering New START the Senate

to again specify appropriate safeguards including an annual independent assessment of DOD's nuclear delivery programs and NNSA's warhead programs, also including sufficiency of the aerospace industrial aircraft, submarine and missile infrastructure and the nuclear warhead laboratories and that infrastructure to support our nuclear deterrent into the future.

Thank you, I would welcome any questions the committee members may have.

Chairman LEVIN. Thank you very much, Dr. Foster.

Mr. Miller.

STATEMENT OF FRANKLIN C. MILLER, INDEPENDENT CONSULTANT

Mr. MILLER. Mr. Chairman, Senator McCain, members of the committee, it's an honor to appear before you, with my colleagues, this morning.

Since experience has taught me that the principal value of a panel such as this is our responses to your questions and our interaction with each other, my opening remarks will be quite brief.

Let me say, at the outset, that I support this New START treaty. It is, as Harold Brown once said of another treaty, "modest but useful." Based on my long involvement in U.S. nuclear deterrence policy and target planning, I am confident that the United States can safely provide for our national security, and that of our allies, at the launcher and warhead limits that the New START treaty prescribes.

The New START treaty reopens channels of communication and means of inspection and verification which were closed when the START treaty expired in December of last year. Transparency increases predictability. Predictability enhances stability.

The New START treaty by itself, however, will not provide increased strategic stability. It is vitally important, in this regard, that the administration and Congress support a modernized and effective U.S. nuclear deterrent. This means that adequate funding must be provided, where necessary and appropriate, to modernize both delivery systems and warheads, including the Department of Energy (DOE) nuclear weapons complex, which the committee has discussed in previous hearings.

The New START treaty permits modernization by both sides. Each side is equally advantaged or disadvantaged. But we, the United States, will only be disadvantaged by what we, ourselves, choose not to do with respect to modernization. The strategic triad which underwrites our national security is aging. It is the product of the Reagan administration's recapitalization of the Kennedy administration's Strategic Modernization Program. The United States must begin promptly to begin work on proceeding with the replacement for the *Ohio*-class submarine. The administration needs to provide Congress a more concrete plan which sets forth its plans for the sustainment of the Minuteman force and for the bomber force.

We also must pay attention to the defense industrial base which supports our strategic deterrent, especially the solid rocket motor production facilities. It is also my view that additional funds need to be provided to enhance both the technical and the human side of that part of our intelligence community which will monitor Russia's compliance with the New START treaty.

Finally, let me say that I believe this New START treaty is the last nuclear arms treaty which can safely ignore Russia's short-range nuclear systems. While properly not a subject for this treaty, which stands on its own merits, I believe the administration must begin to press the Russian Government to reduce, significantly, its vastly oversized arsenal of short-range nuclear weapons. I believe, and have written elsewhere, that I do not think this needs to await the opening of a new round of negotiations on strategic arms cuts, whenever that might occur. I believe the United States needs to turn international attention to the bloated and grossly unnecessary size of the Russian short-range nuclear arsenal.

The administration and the international community should press the Russian Government to provide transparency into the size and composition of its short-range nuclear stockpile, and should call for major near-term reductions in it.

Mr. Chairman, Senator McCain, this concludes my opening remarks, and I look forward to the committee's questions.

Chairman LEVIN. Thank you very much, Mr. Miller.

Dr. Payne.

STATEMENT OF DR. KEITH B. PAYNE, PROFESSOR AND HEAD, GRADUATE DEPARTMENT OF DEFENSE AND STRATEGIC STUDIES, MISSOURI STATE UNIVERSITY (WASHINGTON CAMPUS)

Dr. PAYNE. Thank you Chairman Levin, Senator McCain, distinguished members, it's an honor to appear before the committee to discuss the New START treaty this morning.

I would like to begin by observing that reductions in the number and diversity of U.S. forces can matter greatly, because the credibility of our forces to deter enemies and assure allies is dependent on their flexibility to provide a spectrum of deterrent options and their resilience to adjust in a timely way to changes in the threat environment.

The need for flexibility and multiple strategic options is particularly important today because the contemporary threat environment can shift rapidly and surprisingly. The 2009 report by the bipartisan Strategic Posture Commission emphasizes this U.S. requirement. Understanding the requirement for flexibility and resilience, I believe, is the necessary starting point for any review of the New START treaty. Our force numbers may move lower, but we must be careful to advance the flexibility and resilience that helps make them credible.

The material question regarding verification, and the New START treaty in general, is whether it is compatible with the quantity, diversity, flexibility, and resilience essential for the credibility of our forces. The New START treaty raises some concerns in this regard. For example, a recent Obama administration report on verification apparently emphasizes that any Russian cheating, and I quote, "would have little effect on the assured second-strike capabilities of U.S. strategic forces." This claim suggests that an assured devastating second-strike capability is adequate for U.S. strategic forces, and, therefore, any Russian cheating would have no serious effect on our ability to deter or assure.

Yet, every Republican and Democratic administration since the 1960s has concluded that an assured-destruction second-strike capability alone is an inadequate measure for our forces, because it includes little or none of the flexibility and resilience so important for credible deterrence and assurance.

Under the New START treaty, would the combination of U.S. force reductions and Russian deployments, with or without Russian cheating, threaten the necessary flexibility and resilience of our forces? The New START treaty would limit U.S. strategic flexibility and resilience, to some extent, because it requires sizable reductions in the number of U.S. strategic nuclear launchers and limits some types of strategic conventional forces for Prompt Global Strike.

Senior U.S. military leaders have noted, in open testimony, that the New START treaty would indeed allow sufficient U.S. strategic force flexibility. This important conclusion reportedly follows from analyses that included these three key assumptions: one, that U.S. planning guidance for strategic forces would remain the same; two, that there would be no requests for an increase in forces; and three, that Russia would be compliant with the New START treaty. If one or all of these starting optimistic assumptions do not hold, as is plausible, would the New START treaty allow sufficient U.S. flexibility and resilience to adjust, as necessary, for credible deterrence? This is a fundamental question regarding the New START treaty.

The traditional U.S. triad of bombers, ICBMs, and sea-based missiles, now buttressed by missile defense and the potential for new conventional Prompt Global Strike, can help provide the flexibility and resilience to adjust to a multitude of different threats and circumstances. At this point, however, there is no apparent administration commitment to advance conventional Prompt Global Strike deployment, to replacing the aging ICBM and bomber legs of our triad, or to a new air-launched cruise missile. That fosters concern that force reductions may come at the expense of the longstanding requirements for force diversity and flexibility, and take refuge in old assured-destruction thinking.

If our numbers are to decline further, we must take care to ensure sufficient flexibility and resilience, whether through traditional means or innovations, and for conditions that are less optimistic than those assumed in administration analysis. How much confidence can we have that the administration will take the necessary strategic modernization steps, given the clear statement that its highest nuclear priority now is nonproliferation and movement towards a nuclear-free world, its commitment to further negotiated reductions, and its presumption against any new nuclear warheads? A solid U.S. commitment to bomber and cruise missile modernization, Minuteman III replacement or life extension with enhanced survivability measures, and missile defenses of all ranges could help provide this confidence.

Concern about the New START treaty's reductions of U.S. force flexibility and resilience, however modest or significant, also might be eased if the treaty's ceilings on Russian forces actually would reduce the threats we might face. But, according to numerous Russian open sources, the New START treaty's ceilings are of little

real consequence for Russia. Russia's aged cold war strategic launchers already have been reduced below the New START treaty's ceilings, and will decline further without the treaty. The New START treaty has common ceilings, but appears to require unilateral U.S. reductions.

In addition, the New START treaty's loopholes would allow Russia to deploy far beyond the New START treaty's strategic nuclear warhead ceiling within the terms of the New START treaty, if Russia finds the financial resources to do so. This may be significant over time, because Russia's highest defense procurement priority is the modernization of its strategic nuclear forces.

The troubling irony is that aging forces, and Russia's production and financial problems are now causing reductions in Russia's force numbers without the New START treaty, and the treaty would not prevent Russia from deploying future forces well beyond the New START treaty's specified ceilings.

In sum, flexibility and resilience are key contributors to the credibility of our forces. The most important New START treaty question is whether U.S. forces will retain sufficient flexibility and resilience to be credible in conditions that are less optimistic than those assumed by the administration in its analysis. An important consideration in this regard is that the New START treaty's ceilings appear not to require real Russian launcher reductions in the near term, and its loopholes would allow the renewal of Russian strategic capabilities over time.

There are some steps that might help to mitigate the potential risks posed by the New START treaty. They involve U.S. commitments, demonstrated by policy direction and robust program budget for advanced conventional Prompt Global Strike, missile defense, and innovative replacements for our aging triad.

Thank you.

[The prepared statement of Dr. Payne follows:]

PREPARED STATEMENT BY DR. KEITH B. PAYNE

Chairman Levin, Senator McCain, distinguished members, thank you for the invitation to appear before the committee to discuss New START; it is an honor to do so.

I would like to begin by observing that reductions in the number and diversity of U.S. forces can matter greatly because the credibility of our forces is dependent on their flexibility to provide a spectrum of deterrent options and their resilience to adjust in a timely way to changes in the threat environment. This flexibility and resilience, in turn is determined to a great extent by the number and diversity of our strategic forces.

An "assured destruction"-type deterrent lacking this flexibility and resilience is likely to be incredible against many of the limited, yet severe threats we and our allies may face. U.S. officials knew this full well during the Cold War; virtually all major nuclear policy documents since the 1960s emphasized the need for flexibility and multiple strategic force options.[1] That need is particularly important today because the contemporary threat environment can shift rapidly and surprisingly. In one crisis we may need one set of strategic capabilities to deter credibly, in a different crisis, a different set of strategic capabilities may be necessary; assuring allies credibly may necessitate still different types of strategic forces; and when an

[1] See Richard Nixon, National Security Council, National Security Decision Memorandum-242, Policy for Planning the Employment of Nuclear Weapons, January 17, 1974 (Top Secret, declassified February 20, 1998). See also, Jimmy Carter, Presidential Directive/NSC–59, The White House, July 25, 1980 (Top Secret, Partially declassified August 20, 1996); Harold Brown, Department of Defense Annual Report Fiscal Year 1982 (Washington, DC: USGPO, 1981), p. 40.

attack cannot be deterred, an altogether different set of forces may be necessary to defend.

If we want a credible deterrent across a spectrum of severe threats, including for example, nuclear and biological threats to our allies, our forces must have the quantity and diversity necessary to be flexible and resilient. The 2009 report by the bipartisan Strategic Posture Commission, America's Strategic Posture, emphasizes this contemporary U.S. requirement given the fluid threat environment.[2]

Understanding this requirement is the necessary starting point for any review of New START. The material question regarding verification and New START in general is whether the treaty is compatible with the flexibility and resilience essential to the credibility of U.S. forces over the long term—not simply whether we could retain an "assured second-strike" capability. Under New START, would the combination of U.S. force reductions and Russian force deployments (with or without Russian cheating) threaten the necessary flexibility and resilience of our forces? We must not allow enthusiasm for quantitative nuclear reductions to degrade the flexibility and resilience of our forces and return U.S. to old discarded standards of "assured destruction." Our ability to deter and assure credibly would be undermined. Instead, as our force numbers move lower, we must be careful to advance the force flexibility and resilience that helps make them credible.

My conclusion is that New START raises some concerns in this regard.

For example, a recent administration report on verification apparently emphasizes that "any" Russian cheating "would have little effect on the assured second-strike capabilities of U.S. strategic forces . . . "[3] This claim suggests that an "assured devastating second-strike capability" is adequate for U.S. strategic forces, and therefore "any" Russian cheating could have no serious effect on our ability to deter or assure.[4] Yet, as noted, every Republican and Democratic administration since the 1960s has concluded that an "assured destruction" capability alone is inadequate because it requires little or none of the flexibility and resilience so important for credible deterrence and assurance.

The treaty would limit U.S. strategic force flexibility and resilience because it requires sizeable reductions in the number of U.S. strategic nuclear launchers, and would limit some types of strategic conventional forces for prompt global strike (PGS). Administration officials have said, "The treaty does not constrain our ability to develop and deploy non-nuclear prompt global strike capabilities."[5]

In fact, New START would restrict deployment of U.S. conventional PGS options based on existing ICBMs or sea-based ballistic missiles. These would be limited under New START's ceiling of 700 deployed launchers.[6] We would have to reduce our strategic nuclear force launchers below 700 on a 1:1 basis for each of these conventional PGS systems deployed. The treaty would thus limit our flexibility and resilience in this area. In general, a 1:1 replacement of nuclear forces by conventional forces has understandably and specifically been rejected for deterrence purposes by senior U.S. military leaders.[7]

Administration officials have said, nevertheless, that so limiting these conventional PGS options is acceptable assuming there is a need for only a small number of such systems.[8] Unfortunately, there can be no certainty behind that assumption given the many different and now-unknown threats that will arise in New START's 10–15 year timeframe. Perhaps the option of deploying many such conventional PGS systems will be critical for deterrence, assurance or defense. Under New START we

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[2] The Final Report of the Congressional Commission on the Strategic Posture of the United States, America's Strategic Posture (Washington, DC: USIP, 2009), pp. 23, 24–26.

[3] Unclassified potions of the report quoted by Chairman Carl Levin, Senate Armed Services Committee, Hearing on the New Strategic Arms Reduction Treaty (START) Implementation, July 20, 2010, CQ Congressional Transcript.

[4] "Assured devastating second-strike capability" is the descriptor used by Dr. James Miller in, Senate Armed Services Committee, Hearing on the New Strategic Arms Reduction Treaty (START) Implementation, July 20, 2010, CQ Congressional Transcript.

[5] Dr. James Miller, Ibid. See also, Department of State, Bureau of Verification, Compliance, and Implementation, Fact Sheet, April 8, 2010, at http://www.state.gov/t/vci/rls/139899.htm.

[6] Under New START the number of deployed U.S. strategic launchers will have to be reduced from today's reported level of 880 launchers to a ceiling of 700 deployed launchers. Amy Woolf, The New START Treaty: Central Limits and Key Provisions, Congressional Research Service 7–5700 (June 18, 2010), p. 19.

[7] General Kevin Chilton, Senate Armed Services Committee, Hearing to Receive Testimony on the Nuclear Posture Review, April 22, 2010, pp. 24–25.

[8] Woolf, The New START Treaty: Central Limits and Key Provisions, pp. 17–18; also, Miller, Senate Armed Services Committee, Hearing to Receive Testimony on the Nuclear Posture Review, April 22, 2010, p. 24.

would be mightily constrained from doing so because of the treaty's limits and its required 1:1 trade-off with our nuclear forces.

This problem might be mitigated with Senate guidance that there be no further negotiated restrictions on advanced U.S. non-nuclear PGS systems and a requirement for a firm commitment to the development and deployment, as soon as technically and operationally sound, of conventional PGS capabilities that are not limited by treaty.

In addition, New START's force limits do not allow "more [capability] than is needed" for deterrence under current planning.[9] Leaving little or no such margin may be risky when force flexibility and diversity is necessary to deter and assure across a range of threats.

Senior U.S. military leaders have noted in open testimony that New START would indeed allow sufficient U.S. strategic force flexibility.[10] The analysis behind this important conclusion reportedly was predicated on three key assumptions: (1) U.S. planning guidance for strategic forces would remain the same; (2) there would be no requests for an increase in forces; and (3) Russia would be compliant with New START.[11]

Would the treaty allow sufficient U.S. flexibility and resilience to adjust as necessary for credible deterrence and assurance if one or all of those starting optimistic assumptions do not hold, as is plausible?

For example, what if Russia again decides to violate its treaty commitments? What if relations with China and Russia return to a crisis pitch, and they express more severe nuclear threats to our allies or to us? What if Iranian deployment of nuclear weapons and missiles throws the entire Middle East into an unprecedented security crisis? What if the apparent nuclear nexus of Burma, Iran, North Korea and Syria poses unprecedented threats to our allies or our forces abroad?[12] U.S. planning and force requirements might have to change with any and all of these unwanted developments that could arise during New START's tenure. What new quantitative or qualitative strategic force requirements might arise as a result for credible deterrence, assurance or defense, and would New START preserve the necessary U.S. force flexibility and resilience to meet those requirements? These are fundamental questions regarding the treaty and international security.

More simply, will the United States, at least, develop and deploy the diverse strategic force structure that remains possible under the treaty and could help preserve U.S. force flexibility and resilience? The traditional U.S. triad of bombers, ICBMs, and sea-based missiles—now buttressed by missile defenses and the potential for new non-nuclear PGS capabilities—can be extremely valuable in this regard because the diversity of offensive and defensive options helps provide the flexibility and resilience to adjust to a multitude of different threats and circumstances.

Fortunately, the Obama administration has expressed its intention to support the triad, missile defense deployment, and conventional PGS. At this point, however, there is no apparent, concrete administration commitment to advanced conventional PGS deployment or to replacing the aging ICBM and bomber legs of the triad, including the air-launched cruise missile. This fosters concern that enthusiasm for force reductions may come at the expense of the longstanding requirements for force diversity, flexibility, and resilience, and take refuge in old "assured destruction" thinking. If our numbers are to decline further, we must take care to ensure continued flexibility and resilience—whether through traditional means or innovations.

Bombers have great inherent flexibility and resilience, and the weapons counting rules for bombers under New START are extremely permissive. But these counting rules will be advantageous for U.S. only if we modernize our bomber force. While Russia has decided to build a new strategic bomber and apparently has a new long-range air-launched nuclear cruise missile near deployment,[13] the Obama administration plans to cut U.S. nuclear-capable bombers by more than one-third under New START and has made no apparent commitment to replace the venerable B–

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[9] General Kevin Chilton, Senate Foreign Relations Committee, Hearing, The New START Treaty: Views From the Pentagon, June 16, 2010, Federal News Service.

[10] General Kevin Chilton, Senate Armed Services Committee, Hearing to Receive Testimony on the Nuclear Posture Review, April, 22, p. 14.

[11] General Kevin Chilton, Ibid, pp. 8, 13; and, House Armed Service Committee, Hearing, U.S. Nuclear Weapons Policy and Force Structure, April 15, 2010, p. 11.

[12] See the discussion in, "Article Sees Serious Implications for India From Burma's Purported Nuclear Plans," The Tribune Online, (Chandigarth), July 17, 2010, SAP20100717534024.

[13] See "Moscow Upgrades Strategic Bomber Fleet," Air & Cosmos,(Paris) January 8, 2010, pp. 34–35, EUP201001081; "Russian Military Pundits Consider Recent Missile Launches, Prospects," Mayak Radio, (Moscow) August 8, 2001, CEP20070811950032.

52 or to a new air-launched cruise missile.[14] Similarly, the administration has announced that it will reduce the number of U.S. ICBM launchers by at least 30 under New START,[15] while Russia is deploying new MIRVed mobile ICBMs, and has decided for a new heavy MIRVED ICBM as is now permitted under New START.

Over time, this New START-inspired combination of U.S. ICBM launcher reductions and permitted Russian MIRVed heavy ICBMs could again challenge the survivability of the U.S. ICBM and bomber legs of the triad—a situation long-recognized as highly "destabilizing." If their survivability is at risk, so will be much of the triad's flexibility and the credibility of U.S. forces to deter, assure and defend.

Hard decisions will need to be made during the life of this treaty if we are to advance flexible offensive and defensive capabilities and a resilient force structure. How much confidence can we have that the administration will take the necessary strategic modernization steps given its highest nuclear priority of non-proliferation and movement toward a nuclear free world, its commitment to further negotiations, and its presumption against any new nuclear warheads?[16] Credible assurances and the necessary strategic modernization budgets tied to New START would be helpful in this regard. A solid U.S. commitment to bomber and cruise missile modernization, Minuteman III replacement or life extension with enhanced survivability measures, and missile defenses of all ranges could help provide this confidence.

Concern about New START's reduction of U.S. force flexibility and resilience—however modest or significant—also might be eased if the treaty's ceilings on Russian forces actually would reduce the threats we might face. But, according to numerous Russian open sources, New START's ceilings are of little real consequence for Russia because Russia's aged Cold War strategic launchers already have been reduced below New START's ceilings, and will decline further with or without the treaty—and Russia's comprehensive post-Cold War nuclear modernization programs are moving forward slowly at this point. Aleksey Arbatov, the former Deputy Chairman of the Duma Defense Committee, notes, "The new treaty is an agreement on reducing the American and not the Russian [strategic nuclear forces]. In fact, the latter will be reduced in any case because of the mass removal from the order of battle of obsolete arms and the one-at-a-time introduction of new systems."[17] Prior to the New START negotiations, Russian open sources already projected that by 2012 Russian strategic nuclear forces could have as few as 406 launchers and fewer than 1,500 warheads—well below New START ceilings using its counting rules.[18] The point was made most succinctly by Dr. Sergei Rogov, Director of the USA and Canada Institute in Moscow: "We will not have to reduce anything prematurely. In effect, the ceilings established by the new START Treaty do not force the United States to reduce currently available strategic offensive forces ... Only the United States will have to conduct reductions ... "[19]

New START's common ceilings essentially appear to require unilateral reductions by the United States. Russian officials and analysts have long celebrated this situation, while some U.S. officials and treaty proponents have acknowledged it only recently.[20] In this context, it is difficult to take seriously the notion that the treaty's supposed reductions for Russia justify its prospective limitations on U.S. flexibility and resilience.

Even though Russia's forces are declining dramatically with or without New START, does not the treaty provide solid barriers against the re-emergence of Russian strategic forces? Unfortunately, no. New START neither requires real Russian reductions nor does it provide hard limits on a renewed build up of Russian strategic nuclear forces. This is a troubling irony.

How can it be so? New START contains sufficient loopholes and permissive counting rules to allow Russia to deploy far beyond the treaty's 1,550 strategic nuclear warheads ceiling within the terms of the treaty if Russia finds the financial resources to do so. In fact, according to a report by the official news agency of the

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[14] White House Fact Sheet on the "1251 report," May 13, 2010, available at www.whitehouse.gov/sites/default/files/New%20START%20section%201251%20fact%20sheet.pdf.

[15] Ibid.

[16] Department of Defense, Nuclear Posture Review Report, April 2010, p. vi; and, Testimony of Dr. James Miller, House Armed Service Committee, Hearing, U.S. Nuclear Weapons Policy and Force Structure, April 15, 2010, pp. 38, 41.

[17] "Russia: Arbatov Critique of Khramchikhin Article on Poor State of RF Air Defense," Nezavisimoye Obozreniye Online, March 5, 2010, CEP20100305358011.

[18] See, "Russia: Strategic Missile Troops Chief, Aide Cited on 25 December RS–24 Test Launch," NEWSru.com, December 25, 2007, CEP20071227358002.

[19] Sergei Rogov, "Attempt Number 6: the Balance of Achievements and Concessions. Only the United States Will Have to Reduce Its Strategic Forces," Nezavisimoe Voennoe Obozrenie, April 9, 2010, (In Russian), available at: http://nvo.ng.ru/concepts/2010–04–09/1—snv.html.

[20] See for example, Woolf, The New START Treaty: Central Limits and Key Provisions, p. 20.

Russian Federation, RIA Novosti, Russia could deploy 2,100 strategic nuclear weapons under the treaty—well above the putative 1,550 warhead ceiling.[21] There are avenues that would allow Russia to deploy many more than 2,100 warheads under the treaty. This may be significant over time because Russia's highest defense procurement priority is the modernization of its strategic nuclear forces.[22] According to Russian open sources, Russia has a new strategic air-launched nuclear cruise missile near deployment, is MIRVing its new mobile ICBMs (the RS–24), and has committed to deploy at least one new strategic bomber, a new 5000 km-range submarine-launched cruise missile, and a new heavy ICBM. There also has been interest expressed in the Russian press for a new rail-mobile ICBM and a new air-launched ICBM—neither of which, according to some open Russian commentary, would necessarily have to be counted under the treaty's force ceilings.

The bottom line is that aging forces and Russia's production and financial problems are causing reductions in Russia's force numbers precipitously—with or without New START. But, if and when Russia has the necessary financial and production capacity, New START will not prevent Russia from deploying new forces well beyond New START's specified ceilings.

In sum, force numbers and diversity do matter because flexibility and resilience are key contributors to the credibility of our forces. This was true in the past and is even more so now. New START's limits, including on some U.S. conventional PGS options, will require U.S. force reductions and constrain U.S. strategic force flexibility and diversity. The most important question in this regard is whether U.S. forces in the future will retain sufficient flexibility and resilience to be credible in conditions that are less optimistic than those assumed by the administration in its New START analyses. An important consideration in this regard is that the treaty's ceilings appear not to require real Russian nuclear force reductions in the near-term, and its loopholes and extreme permissiveness would not prevent the renewal of Russian strategic capabilities over time. A treaty that could reduce U.S. flexibility and resilience but not require real Russian cuts nor preclude a future Russian strategic renewal merits close Senate scrutiny.

There are some steps that might help to mitigate these risks posed by New START. They involve U.S. commitments, demonstrated by policy guidance and robust program budgets for advanced conventional PGS, missile defense, and innovative replacements for our aging ICBMs, bombers and air-launched missiles—modernization programs permitted under the treaty.

NEW START AND MISSILE DEFENSE

Many others have commented on New START's connections to missile defense. So, I will only summarize my own conclusions here. Senior administration officials have said about missile defense that, "There are no constraints of any kind in the New START Treaty,"[23] and, "The treaty does nothing to constrain missile defenses ... there is no limit or constraint on what the United States can do with its missile defense systems."[24] Such administration statements simply are false. New START includes limitations on U.S. missile defense options. Judgments may differ regarding the significance of these limitations, but there should be no further denials that New START includes them.

U.S. missile defense options may need to be protected, particularly given Russia's long-standing goal to veto U.S. missile defense and the administration's apparent commitment to further negotiations. Toward this end, the Senate could direct the President to make more clear to Russia than now is reflected in the pertinent U.S. Unilateral Statement that the United States recognizes no treaty limits on missile defense beyond those in Article 5, paragraph 3, and that the United States will not agree to any further negotiated limits of any kind on U.S. missile defense options. In addition, New START establishes the Bilateral Consultative Commission (BCC) and gives it broad authority to "agree upon such additional measures as may be necessary to improve the viability and effectiveness of the Treaty."[25] Missile defense

[21] Ilya Kramnuk, "New START Treaty based on Mutual Russian-U.S. Concessions," RIA Novosti, April 22, 2010, at http://en.rian.ru/analysis/20100409/158499862.html.

[22] As stated by the First Deputy Defense Minister, Col-Gen. Vladimir Popovkin in, Pavel Felgenhauer, "Russia Seeks to Impose New ABM Treaty on the U.S. by Developing BMD," July 16, 2010, at georgiandaily.com.

[23] Secretary Ellen Tauscher, House Armed Service Committee, Hearing, U.S. Nuclear Weapons Policy and Force Structure, April 15, 2010, p. 19.

[24] Secretary Ellen Tauscher, Press Briefing, "New START Treaty and the Obama administration's Nonproliferation Agenda," March 29, 2010, available at, www.state.gov/t/us/139205.htm.

[25] New START Treaty, Protocol, Part 6, Section 1, paragraph b.

is part of the subject matter of the treaty and its protocol, and the BCC is authorized specifically to discuss the unique distinguishing features of missile defense launchers and interceptors and make "viability and effectiveness" changes in the treaty. These could be done in secret and without Senate advice and consent.[26] Such institutions are not supposed to make substantive changes in the terms of treaties. But, START I's Joint Compliance and Inspection Commission (JCIC) served with a more limited scope, and appears to have made significant changes in START's terms without Senate advice and consent. This past precedent is not comforting in this regard.

The Senate might find it particularly valuable to insist on continuous and complete visibility into the ongoing workings of the BCC. This could be particularly helpful to ensure that no new limits on missile defense emerge, without Senate advice and consent, from the BCC's potentially secret proceedings.

Thank you.

Chairman LEVIN. Thank you very much, Dr. Payne.

Ambassador Pifer.

STATEMENT OF AMBASSADOR STEVEN PIFER, SENIOR FELLOW, FOREIGN POLICY CENTER ON THE UNITED STATES AND EUROPE, AND DIRECTOR, ARMS CONTROL INITIATIVE, THE BROOKINGS INSTITUTION

Ambassador PIFER. Thank you. Mr. Chairman, Senator McCain, distinguished members of the committee, thank you for the opportunity to appear today to discuss the New Strategic Arms Reductions Treaty, or the New START treaty.

With your permission, I'll submit a written statement for the record, but I would like to summarize the five ways that I believe the New START treaty will strengthen U.S. national security.

First, the New START treaty will limit the number of Russian strategic nuclear warheads that could target the United States. While political relations between Washington and Moscow have changed dramatically since the Cold War, reducing and limiting the strategic nuclear potential on the Russian side nevertheless will make the United States safer and more secure.

Some question the need for treaty-based limits, given that the Russian strategic missile force has been shrinking. Moscow, thus far, has made a policy choice to allow that shrinkage, but it should not be assumed that Russia would continue to reduce its nuclear forces in the absence of the New START treaty. The Russians could decide to build more strategic missiles and deploy an arsenal well in excess of the New START treaty warhead ceiling of 1,550.

Second, the New START treaty's verification measures will provide significant information regarding Russian strategic systems that we will not have without the treaty. Due to the expiration of the START I treaty in December of last year, there's currently no system of onsite inspections or data exchanges to augment our understanding of Russia's strategic nuclear forces. Absent the New START treaty's extensive verification provisions, the United States will steadily lose clarity on the status of Russia's strategic nuclear arsenal. The New START treaty's data exchange, for example, would require that the Russians provide the number of warheads on each deployed ICBM and submarine-launched ballistic missile (SLBM). Its inspection regime will allow U.S. inspectors to choose individual missiles and check the number of warheads. U.S. na-

[26] New START Treaty, Article XV, paragraph 2; New START Treaty, Protocol, Part 6, Section 5.

tional technical means of verification cannot, on their own, provide this kind of information.

Third, U.S. strategic nuclear forces, under the New START treaty, will provide a strong deterrent to protect the United States and extend deterrence to our allies. The planned triad will be survivable, robust, and agile. Here I would associate myself with remarks by both Mr. Miller and Dr. Foster on the importance of the executive branch and Congress working together to ensure that we have a modern nuclear weapons complex, and the appropriate steps to modernize our strategic forces.

Fourth, the New START treaty will strengthen the U.S. hand in pressing to constrain the proliferation of nuclear weapons. This will not affect the cases of North Korea or Iran. But U.S. implementation of the New START treaty could help raise the proliferation bar, including by strengthening our ability to secure the help of third countries in pressing future nuclear aspirants not to proceed.

Fifth, the New START treaty contributes to improved U.S.-Russian relations. The Obama administration is finding, like the administrations of President Reagan, President George H.W. Bush, and President Clinton before it, that progress on arms control has a positive impact on the broader relationship. For example, Moscow does not see eye to eye with us on the issue of Iran. But, Russian adoption of a tougher stance towards Tehran, over the past 10 months, coincided with progress in, and conclusion of, the New START treaty. Certainly, difficult issues remain between Washington and Moscow, but the relationship is, by any measure, better than it was 2 years ago.

A number of concerns have been raised about the New START treaty, such as the possible impact on missile defense, the bomber-weapon-counting rule, and the verification regime. I believe these concerns lack a substantive basis, or have good responses. The New START treaty does not, for example, affect in a meaningful way our ability to deploy missile defenses to protect the United States and our allies. I address these points in detail in my prepared statement.

All this does not mean that the New START treaty is ideal. It would have been preferable to have a bomber-weapon-counting rule that reflected less of a discount, and to retain the START I telemetry provisions. But, an agreement necessarily reflects compromises that take into account the position of the other side. These points do not outweigh the compelling arguments in favor of the New START treaty.

A failure to ratify the New START treaty, moreover, would have substantial costs for the United States. Lack of the New START treaty's verification regime would deny us valuable insights into Russian strategic forces and unpredictability would grow. The U.S. effort to curb nuclear proliferation would suffer, and a failure to ratify would deal a major blow to U.S.-Russia relations, resulting in less cooperation from Moscow on problems such as Iran.

Mr. Chairman, Senator McCain, members of the committee, I believe that a substantive assessment of the New START treaty demonstrates that the treaty is in the U.S. national interest. It merits the Senate providing consent to ratification.

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

[The prepared statement of Ambassador Pifer follows:]

PREPARED STATEMENT BY AMBASSADOR STEVEN PIFER

INTRODUCTION

Mr. Chairman, Senator McCain, distinguished members of the committee, thank you for the opportunity to appear today to testify on the New Strategic Arms Reduction Treaty (New START) and why I believe its ratification and entry-into-force are in the national interest of the United States.

New START will strengthen U.S. national security in several ways. The treaty will:

- limit Russian strategic nuclear forces in a verifiable manner;
- provide greater transparency regarding Russian strategic systems, allowing us to make better-informed decisions regarding our own strategic forces;
- permit the United States to maintain a robust nuclear deterrent capable of protecting the United States and our allies;
- strengthen the U.S. position in the international community in seeking to curb the proliferation of nuclear weapons; and
- contribute to a more positive U.S.-Russia relationship.

At the same time, the treaty does not affect our ability to develop and deploy missile defenses to protect the United States and our allies.

The arguments in favor of ratification of New START are compelling. The United States will be better off with the treaty than without it. A number of concerns have been raised about the treaty since Presidents Obama and Medvedev signed it on April 8. When those issues are examined, they do not make a case for withholding consent to ratification. Moreover, a failure to ratify the treaty would have significant costs for the United States.

WHY NEW START IS IN THE U.S. NATIONAL INTEREST

There are five principal reasons why New START strengthens U.S. national security.

First, New START will limit the number of Russian strategic nuclear warheads that could strike the United States. New START's limits of 1,550 warheads and 700 deployed strategic delivery vehicles constitute significant reductions compared to the limits in the 1991 START I Treaty: 6,000 warheads and 1,600 strategic nuclear delivery vehicles.[1] New START represents a more modest reduction compared to the 2002 Strategic Offensive Reductions Treaty (SORT), which limited each side to no more than 1,700–2,200 strategic nuclear warheads by 2012.[2] New START, however, includes agreed counting rules, while SORT had none; it is not clear that the sides shared the same view of how to count warheads under SORT.

Given the changes in political relations between Washington and Moscow since the end of the Cold War and the collapse of the Soviet Union, it is difficult to conceive of circumstances in which there would be a nuclear exchange between the United States and Russia. Nevertheless, reducing the strategic nuclear potential on the Russian side and reestablishing an effective verification regime will make the United States safer and more secure.

Some question the need for treaty-based limits on strategic nuclear forces given that the Russian strategic missile force has been shrinking. This results from the aging of their current intercontinental ballistic missiles (ICBMs) and ballistic missile submarines, and their relatively modest procurement rate of new ICBMs, which is reportedly less than 10 per year. Moscow thus far has made a policy choice to allow that shrinkage. It should not be assumed that Russia would choose to continue to reduce its nuclear forces in the absence of New START. The Russians could, if they felt it necessary, change their policy and build more strategic ballistic missiles and continue to deploy an arsenal of deployed strategic warheads well in excess of the New START ceiling of 1,550 warheads. While Russia's economic situation is not as strong as it was prior to the global financial crisis, recovering energy prices

[1] Due to differences in counting rules between START I and New START, these limits are not exactly comparable.

[2] SORT did not limit strategic nuclear delivery vehicles. As SORT had no counting rules or verification measures, it provided no way for the sides to verify the number of warheads deployed by the other.

ensure a steady stream of revenue to the Russian Government that could be used to fund expanded production of new missiles.

Second, New START's verification and transparency measures will provide significant information regarding Russian strategic systems that we will not have without the treaty. With the expiration of START I and its verification regime on December 5, 2009, there is currently no system of on-site inspections or data exchanges to augment our understanding of Russia's strategic nuclear forces. Absent the new treaty's extensive verification provisions, the United States will have to rely solely on national technical means of verification and will steadily lose clarity on the status of Russia's strategic nuclear arsenal.

New START's data exchange, for example, will require that the Russians provide the location of every one of their deployed and non-deployed ICBMs and submarine-launched ballistic missiles (SLBMs) as well as the number of warheads on each of their deployed missiles. The inspection regime will allow U.S. inspectors to choose individual Russian ICBMs and SLBMs and check the number of warheads on those missiles, to be sure that they conform to the number in the Russian data declaration. U.S. national technical means of verification, such as imagery satellites, are by all accounts very capable, but they cannot on their own provide information such as the number of warheads on individual Russian strategic ballistic missiles.

The aggregate of New START's verification provisions—exchanges, data updates, unique identifiers, notifications and inspections—will have a synergistic effect. For example, notifications of changes in data, of the exit of solid-fueled ICBMs or SLBMs from a production facility, or of movement of ICBMs to a test range will allow us to cue our national technical means and use them more effectively to monitor Russian forces.

The treaty's verification regime will provide the United States a far better picture of the development of Russian strategic forces over the next 10 years than we would have with just national technical means alone. Greater predictability about Russian strategic forces bolsters strategic stability. It will allow the U.S. military to avoid having to make worse-case assumptions; it instead will be able to make better-informed and smarter decisions about how to equip and operate U.S. strategic nuclear forces. While not required for monitoring New START's limits, the treaty's telemetry provisions will provide transparency regarding the performance of Russian strategic ballistic missiles.

Third, while New START will reduce U.S. strategic nuclear forces, they will continue to provide a strong and effective deterrent. The Department of Defense has said that, under New START, it will maintain the strategic triad. It intends to deploy a force of up to 420 single-warhead Minuteman III ICBMs, up to 60 B–2 and B–52 heavy bombers equipped for nuclear armaments, and 240 Trident D–5 SLBMs.[3] The force will be survivable, robust, and agile—able to deter attack on the United States and extend deterrence to U.S. allies.

Compared to the current force structure, U.S. strategic forces following implementation of the New START reductions would present a potential attacker with the challenge of striking almost the same number of targets, less 30–50 ICBM silos. Today and for the foreseeable future, only Russia is capable of even contemplating such a strike. U.S.-Russian relations have changed dramatically since the Cold War, so such a strike is barely conceivable. Nevertheless, were the Russians to consider an attack, they would face significant and daunting challenges.

New START will have limited Russian strategic nuclear forces. Since each U.S. Minuteman III will carry only one warhead, and conservative attack scenarios normally postulate using two warheads against each ICBM silo, a Russian first strike attempting to disarm the United States would require that the Russians use well over half of their permitted weapons to destroy about one-fourth of permitted U.S. strategic warheads in fixed ICBM silos. This is hardly a good exchange ratio.

Assuming that the U.S. Navy keeps one-half of its Trident ballistic missile submarines not in long-term maintenance at sea—a conservative assumption[4]—even if

[3] As New START limits the United States to no more than 700 deployed ICBMs, SLBMs, and heavy bombers equipped for nuclear armaments and the Department of Defense plans to deploy 240 SLBMs, the United States will be able to deploy a total of no more than 460 ICBMs and heavy bombers. This could be 400 Minuteman III ICBMs and 60 heavy bombers, or 420 Minuteman III ICBMs and 40 heavy bombers, or some combination in between.

[4] According to the U.S. Navy Fact File, "The *Ohio* class design allows the submarines to operate for 15 or more years between major overhauls. On average, the submarines spend 77 days at sea followed by 35 days in-port for maintenance. Each SSBN [ballistic missile submarine] has two crews, Blue and Gold, which alternate manning the submarines while on patrol. This maximizes the SSBN's strategic availability while maintaining the crew's training readiness and morale at high levels." This suggests that closer to two-thirds of the submarines are at sea at any

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all ICBMs, bombers and submarines in port were destroyed, the United States would still retain some 540 nuclear warheads at sea under the New START limits.[5] That force would give the president a range of response options. Moreover, this assumes a "bolt from the blue," a surprise attack in which the United States has not generated its forces. In a crisis, the U.S. Navy would have the option of deploying more Trident submarines at sea, which would increase the number of surviving warheads, while the U.S. Air Force could place heavy bombers on alert, thereby increasing their survival prospects. The ability of a large portion of U.S. strategic nuclear forces to survive an attack would be a significant factor dissuading and deterring a potential aggressor from striking in the first place.

Fourth, ratification and entry-into-force of New START will strengthen the U.S. hand in pressing to constrain the proliferation of nuclear weapons. This will not reverse North Korea's decision to acquire a nuclear capability or persuade Iran to halt its nuclear efforts; the United States and the international community will have to pursue other means to achieve those goals. But U.S. ratification and implementation of New START could help raise the bar to prevent other countries from proceeding down the path to acquiring nuclear weapons, including by strengthening our ability to secure the help of third countries in pressing future nuclear aspirants not to proceed.

The United States and Russia together have some 95 percent of the world's nuclear weapons; if we are not reducing those arsenals, what does that do to our credibility in asking other countries to forgo nuclear programs? If New START is rejected or its entry-into-force substantially delayed, U.S. non-proliferation efforts would suffer. The ability of the United States to press other states to endorse, implement and help to enforce additional counter-proliferation and non-proliferation initiatives—such as universal adherence to the IAEA additional protocol—would, in all likelihood, be severely weakened.

Fifth, New START contributes to improved U.S.-Russian relations. Relations between Washington and Moscow in 2008 fell to their lowest point since the collapse of the USSR in 1991. The relationship has improved substantially since then, and New START has been a major driver of that improvement. While the Russians do not regard the treaty as ideal, they recognize that Washington took account of some of their key views.

A primary Russian concern regarding a successor to START I was that it contain limits on strategic delivery vehicles. In 2008, the Bush administration proposed to replace START I with a follow-on agreement that would have limited deployed strategic nuclear warheads but not strategic delivery vehicles. This was unacceptable to the Russians. They believed that, with no limits on strategic delivery vehicles and no limits on non-deployed strategic nuclear warheads, the United States would have a major breakout capability, that is, the ability to quickly deploy strategic warheads beyond the limits in a follow-on agreement.

The Russians thus appreciated the readiness of the Obama administration to return to the traditional approach to constraining strategic offensive forces and limit strategic delivery vehicles as well as strategic warheads. That facilitated conclusion of New START and also demonstrated Washington's broader willingness to take into account Russian concerns. The Obama administration is finding, like the administrations of President Reagan, President George H.W. Bush, and President Clinton before it, that progress on arms control can have a positive impact on the overall relationship.

The Russians now permit overflights by U.S. military aircraft to move personnel and lethal military equipment to support U.S. and NATO operations in Afghanistan. This, plus Moscow's allowance of land transit of other materiel through Russia, has helped diversify supply routes to Afghanistan. On another priority issue for Washington, Moscow has over the past 10 months adopted a tougher stance toward Iran's nuclear ambitions, delaying delivery of the S–300 surface-to-air missile system and supporting a June U.N. Security Council resolution imposing new sanctions on Iran, including an embargo on most types of arms. The latter point is notable in that Russia has long viewed Iran as a market for conventional weapons sales.

This does not mean that Moscow sees eye-to-eye with us on Iran; indeed, the Russians have a different set of interests with Tehran and view the prospect of an Ira-

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particular time. Of the 14 Trident ballistic missile submarines, 2 usually are in long-term maintenance, leaving 12 for normal operations. A two-thirds deployment rate would mean eight at sea.

[5] The Department of Defense plans for the strategic triad under New START suggest the 240 deployed Trident D–5 SLBMs will carry a total of 1,090 warheads. Thus, half of the Trident submarines at sea would mean some 540 warheads at sea. If 8 submarines were at sea, that would mean some 720 warheads.

nian nuclear weapon with a lesser sense of urgency than does Washington. The Russians have, however, over the past 10 months adopted a tougher position toward Tehran than in the past. That coincided with progress on and conclusion of New START.

All is not going well in U.S.-Russian relations. There are serious grounds for concern over political freedom within Russia. In addition, Washington and Moscow continue to differ sharply on questions regarding the post-Soviet space, such as Georgia and the breakaway regions of South Ossetia and Abkhazia. But the overall relationship is by any measure in better shape than it was 2 years ago, and New START has made an important contribution to that. Rejection or substantial delay of New START entry-into-force would damage the broader relationship and make it more difficult to secure Russian support on issues of concern to Washington, such as Iran.

RESPONDING TO CONCERNS ABOUT NEW START

In the time since New START's signature, a number of concerns have arisen about the treaty, its terms and its impact on U.S. security. When examined, those concerns have no substantive basis or are over-stated relative to the benefits of the treaty.

First, some worry that New START will limit missile defense and/or weaken the American commitment to missile defense. The New START treaty does not constrain the planned U.S. missile defense program and has only one limit on missile defense. That limit prevents the United States from doing something it would not in any case want to do.

The treaty's preamble recognizes "the existence of the interrelationship between strategic offensive arms and strategic defensive arms." This reflects a strategic reality that has been acknowledged for more than 40 years: if one side deploys a strategic missile defense system, that could have an impact on the other side's strategic offensive forces. The preamble also notes "current strategic defensive arms do not undermine the viability and effectiveness of the strategic offensive arms of the Parties." That statement reflects the current strategic reality. This preambular language does not constrain missile defense.

The single limit in the treaty on missile defense appears in Article V, paragraph 3. It says "each Party shall not convert and shall not use ICBM launchers and SLBM launchers for placement of missile defense interceptors therein." This would prevent the United States from converting existing ICBM silos to hold ground-based interceptor missiles. However, as senior Department of Defense officials have testified, the cost of converting one ICBM silo to house a ground-based interceptor missile would be $20 million more than building a new interceptor silo from scratch. No one has offered a plausible reason or scenario for putting missile defense interceptors on ballistic missile submarines. A limit that prevents the United States from doing something that the United States would not do in any event is a limit that the United States should be able to live with.

Others have expressed concern about the unilateral statement issued by the Russians on April 8, which says in part that New START "may be effective and viable only in conditions where there is no qualitative or quantitative build-up in the missile defense system capabilities of the United States. Consequently, the extraordinary events referred to in Article XIV of the Treaty also include a build-up in the missile defense capabilities of the United States of America such that it would give rise to a threat to the strategic nuclear force potential of the Russian Federation." This statement merits several observations.

First, as a unilateral statement rather than as a part of the treaty, this statement has no legal bearing. It should be read merely as a statement of Russian concern.

Second, Russia has the right under the treaty—as does the United States—to withdraw on 3 months notice for any reason that it determines endangers its supreme interests. Such withdrawal clauses have been an integral part of every U.S.-Soviet or U.S.-Russian strategic nuclear arms agreement. Indeed, the United States invoked the withdrawal clause in December 2001 when it notified Russia of its intent to withdraw from the 1972 Anti-Ballistic Missile (ABM) Treaty.

Third, President Medvedev explained the unilateral statement in some detail in an April 9 interview. He said "that formula says there is an interconnection between strategic offensive arms and missile defense. But it's mentioned there also about circumstances which were the basis [for signature] of that treaty agreed upon by both parties. So, if those circumstances will change, then you would have, we would consider it as the reason to jeopardize the whole agreement. That doesn't mean that because of that rule, if the American side starts to build up the missile [defense] system, that the treaty would automatically lose its power. . . . I would like to make sure there is no impression that any change would be a reason to abandon a signed

agreement."[6] The point is that the Russians would not be concerned by any U.S. missile defense developments but by missile developments that would endanger their strategic offensive forces. In those circumstances, they have the option of withdrawing from the treaty. Why is this considered a remarkable point? Were Russian missile defense developments to threaten the U.S. strategic deterrent, Washington presumably would want the option to withdraw from the treaty.

Fourth, Moscow expressed concern about potential U.S. missile defense developments in 1991 and made a similar unilateral statement in conjunction with its signature of the START I Treaty. In fact, the Russians did not withdraw from START I, even after the United States withdrew from the ABM Treaty in 2002 and began deploying ground-based interceptors whose deployment would have been barred by the ABM Treaty. Moscow may hope to use the threat of withdrawal to persuade the United States to scale back its missile defense plans, but that tactic has not worked in the past.

Fifth, the Russians signed New START after President Obama made clear that he would not agree to limit the U.S. ability to defend against a ballistic missile attack from North Korea or Iran. They did so presumably because they concluded that the constraints on strategic offensive forces are in their interest and that U.S. missile defense plans—particularly the Phased Adaptive Approach based on the Standard SM–3 interceptor—will not endanger their strategic offensive forces over the 10-year life of the treaty.

Second, some express concern that conventional warheads on ICBMs and SLBMs will count under New START's limit of 1,550 strategic warheads. At present, the United States deploys only nuclear warheads on its strategic ballistic missiles. The Russians are concerned that, given the increased accuracy of U.S. strategic systems, conventional warheads could destroy strategic targets that previously would be targeted with nuclear weapons. The Russians therefore sought a ban on conventional warheads on ICBMs and SLBMs but fell off that when the United States agreed to count any conventional warheads on strategic ballistic missiles under the warhead limit.

The United States has considered a program—Prompt Global Strike—to put conventional warheads on ICBMs or SLBMs. Were that program to go forward, those conventional warheads would count under the terms of New START. However, the number of conventional warheads on strategic ballistic missiles would likely be small. The Obama administration has characterized this as a niche capability. The Bush administration considered removing the nuclear warheads from two Trident D–5 SLBMs on each Trident ballistic missile submarine and replacing those with conventional warheads. That plan, which did not go forward, would have meant less than 30 conventional warheads on the total SLBM force, a tiny fraction of the 1,550 warheads permitted under New START. An ICBM or SLBM is an awfully expensive way to deliver a conventional warhead to a target. It is difficult to conceive of plausible scenarios where other, more cost-effective means—such as bomber-delivered weapons or Trident submarines converted to carry conventional sea-launched cruise missiles—would not suffice and provide lower-cost strike options.

Third, some criticize New START for counting heavy bombers as carrying only one warhead each, when they can carry many more. New START treats warheads on ballistic missiles and heavy bombers differently. It counts the actual number of warheads on ICBMs and SLBMs; thus, if either side were to choose to deploy only ICBMs and SLBMs, it would face a hard limit of 1,550 warheads. The rule attributing one weapon to each heavy bomber equipped for nuclear armaments is more an accounting mechanism rather than a hard limit. Depending on how many weapons the sides plan to place on bombers, the total number of ballistic missile warheads and bomber weapons could exceed 1,550.

The negotiators explained this rule by noting that, in contrast to ICBMs and SLBMs, neither U.S. nor Russian bombers are normally maintained with any nuclear weapons on board. They thus decided to attribute one weapon to each deployed heavy bomber.

Securing preferential treatment for bombers has been a central goal of U.S. arms control policy for 40 years. The rationale for differentiation between bombers and ballistic missiles is that bombers, due to their long flight times (as much as 8–10 hours as opposed to 15–30 minutes for strategic ballistic missiles), cannot be used in a surprise attack. The Reagan administration's original START proposal in 1982 contained no limits on bombers. When it was concluded in 1991, START I had

[6] "Transcript: George Stephanopoulos Interviews Russian President Dmitry Medvedev," April 9, 2009, http//abcnews.go.com/print?id=10348116.

counting rules that discounted the number of weapons attributed to bombers under the 6,000 warhead limit.[7]

It would have been preferable had New START included a counting rule that provided less of a discount for bomber weapons. However, this rule benefits Russia and the United States equally. The United States historically has given greater weight to the bomber leg of its triad than did the Soviet Union or Russia, and deploys twice as many bombers as does Russia, though many U.S. bombers have been converted to conventional-only roles.

Fourth, some worry that New START does not define a rail-mobile ICBM launcher, thereby creating a loophole for future exploitation by the Russians. It is correct that the treaty's definitions do not specifically define a "rail-mobile ICBM launcher." U.S. negotiators did not pursue this because the Russians retired their rail-mobile ICBMs prior to the beginning of the New START negotiations. The plant which manufactured those SS–24 ICBMs is located in Dnipropetrovsk, in what today is independent Ukraine.

Part One of the New START Protocol defines an ICBM launcher as "a device intended or used to contain, prepare for launch, and launch an ICBM." This would capture under New START's limits any rail-mobile ICBM that the Russians might choose to deploy in the future. It is difficult, moreover, to give credence to the notion that a U.S. administration would sit back while the Russians deployed rail-mobile ICBMs and claimed that they somehow were exempt from the limits of New START.

Fifth, some express concern that New START has less in the way of verification than did START I. As Presidents Obama and Medvedev agreed in July 2009, one goal for New START was, where possible, to streamline and simplify verification measures. This reflected a desire on the part of the militaries on both sides to make verification measures less costly and less intrusive on operational practices. It also reflected the fact that, over 15 years of implementing the START I verification regime, the sides gained considerable expertise, including on how to make verification simpler and more efficient.

In some cases, New START's limits did not require the kinds of verification provisions that START I did. This was the case with telemetry, the information that a missile broadcasts during a flight test to report on its performance. START I required that the sides broadcast virtually all telemetry unencrypted and that, following a test, the testing side provide the other with a copy of the telemetry that it recorded. START I needed access to this telemetry for three reasons: (1) to monitor START I's limit on ballistic missile throw-weight; (2) to monitor START I's limit on new types of strategic ballistic missiles; and (3) to monitor the number of warhead releases or simulated releases during a ballistic missile test to ensure that the total number of releases did not exceed the number of warheads attributed to that type of ballistic missile.

New START does not have limits on throw-weight, on new types of ballistic missiles, or on the total number of warheads attributed to a particular missile type. As for monitoring the number of warheads, New START uses inspections to confirm the actual number of warheads on individual ICBMs and SLBMs. New START thus does not need telemetry for purposes of verifying its limits. It would have been preferable for transparency purposes were New START to retain START I's telemetry provisions, so that we would have access to all telemetry from Russian ballistic missile tests. The Russians, however, were not prepared to agree to this. The result is a more limited transparency provision that provides for exchanging telemetry on five missile tests per year.

More broadly, however, asking whether New START has more or less in the way of verification measures than START I is using the wrong metric for judging New START's verification regime, just as it would be incorrect to compare New START to the SORT Treaty, which had no verification measures. The verification system of START I was designed to monitor compliance with a different treaty, with a different (and more complex) set of limits, in a different political context. For example, START I applied inspections to 70 facilities, many never previously seen by U.S. personnel on the ground. There are now only 35 facilities subject to inspection, many quite familiar to U.S. inspectors from past visits.

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[7] Under START I, each U.S. bomber equipped to carry long-range air-launched cruise missiles (ALCMs) counted as ten under the 6,000 warhead limit, even though U.S. bombers could carry more. The B–52H, for example, could carry up to 20 ALCMs. Russian bombers equipped to carry long-range ALCMs counted as eight under the 6.000 warhead limit; they could carry more than eight but not as many as U.S. bombers. U.S. and Russian bombers not equipped to carry long-range ALCMs counted as one under the 6,000 warhead limit, even though they could carry many more. U.S. B–52 bombers, for example, could carry 12–14 nuclear bombs and short-range attack missiles and still count as only one warhead under START I.

The verifiability of New START should be judged by whether its monitoring and verification measures are appropriate for its limits such that the United States will have high confidence that it could detect a militarily significant violation in a timely manner, that is, in time for the United States to respond before its security is jeopardized. The answer to this question is "yes." The treaty is effectively verifiable, as General Chilton, Commander of U.S. Strategic Command, stated last week.

Sixth, some criticize New START for not limiting tactical nuclear weapons, where Russia has a significant numerical advantage. It is correct that New START does not limit tactical nuclear weapons. Had the administration tried to limit those weapons in this agreement, it could have taken much longer to negotiate, when the urgency was to secure a new strategic arms agreement given the looming expiration of START I in December 2009. The negotiators would likely still be at it.

The Obama administration has stated that it will address tactical nuclear weapons in the next round of negotiations. This is important. With New START's limits, we will be at the point where it is difficult to countenance further strategic arms cuts without addressing limits on tactical nuclear weapons. A failure to ratify New START, however, would damage the broader U.S.-Russian relationship and would not make securing Russian agreement to reductions in tactical nuclear weapons any easier. Under those circumstances, it is uncertain how quickly the Russians would even agree to return to the negotiating table. Once they did return, the new negotiation would prove far more difficult as the Russians revisited concessions from New START and made new demands.

Finally, as Senator Lugar noted in a July 8 statement, "most of Russia's tactical nuclear weapons either have very short ranges, are used for homeland air defense, are devoted to the Chinese border, or are in storage." The countries most exposed to Russia's tactical nuclear arsenal—NATO allies in Europe—support New START.

Seventh, some argue that further reductions in the U.S. strategic arsenal would be risky without a plan to maintain a robust U.S. nuclear deterrent. In fact, the administration requested $7 billion in the fiscal year 2011 budget for the National Nuclear Security Administration's (NNSA) weapons activities, a 10 percent increase compared to the previous year. The administration has stated that it intends to spend $80 billion over 10 years for NNSA weapons activities and the nuclear weapons complex, as well as $100 billion over 10 years to maintain and modernize strategic delivery systems.

When the concerns about New START are examined, they lack substantive basis or are over-stated relative to the benefits of the treaty. None of these concerns should offer grounds for the Senate to withhold its consent to ratification, particularly when bearing in mind the benefits that the treaty offers and the substantial costs to the United States of a failure to ratify.

POSSIBLE RUSSIAN CHEATING

There has been some discussion before this committee regarding the possibility of Russian cheating. No cheating on an arms control agreement should be politically acceptable. However, one can draw a distinction between cheating that will have little impact on the strategic balance and cheating that is militarily significant. While one would want a monitoring and verification regime capable of detecting any cheating, the focus should be on a monitoring and verification regime that can detect militarily significant treaty violations in a timely manner, that is, in time for a U.S. response before its security interests are jeopardized. This is the standard of "effective verification" against which arms control treaties have historically been evaluated.

Under the New START treaty, the United States should be able to detect militarily significant cheating. That plus possible U.S. response options should dissuade the Russians from considering cheating in the first place.

For example, could the Russians cheat by deploying extra warheads on ICBMs or SLBMs? Perhaps, but they would run a significantly greater risk of being caught than in the past. START I provided for 10 inspections per year to ensure that the number of warheads on an ICBM or SLBM did not exceed the number attributed to that type of ICBM or SLBM. The sides concluded that ten inspections created a sufficient risk of being caught so that neither would cheat. New START also provides for ten warhead inspections per year, but the number of inspectable ICBMs and SLBMs will be dramatically reduced compared to the number in START I. That raises the likelihood that cheating would be discovered.[8]

[8] The 10 START I warhead inspections were conducted when the treaty allowed each side to deploy 1,600 strategic nuclear delivery vehicles and the Russians deployed fewer than 100 heavy bombers; thus the "universe" of inspectable Russian ICBMs and SLBMs could be in the neigh-

Given that the Russians will likely have significant headroom under the 700 limit on deployed ICBMs, SLBMs and heavy bombers equipped for nuclear armaments, it is hard to see that they would perceive an advantage to trying to build undeclared ballistic missiles. The United States, moreover, would likely detect the production of more than a small number of undeclared ballistic missiles.

Finally, when considering whether to cheat, the Russians would face a major disincentive in the form of the possible U.S. response. As described by the Department of Defense, the United States will have to eliminate or convert about 130 deployed strategic delivery vehicles under New START but will reach the warhead limit of 1,550 largely by "downloading"—removing warheads from deployed missiles. The Russians understand that those missiles could be "uploaded," that is, the downloaded warheads could be returned to deployed missiles. New START will leave the United States with a significant upload capability. Under the plans announced by the Department of Defense, the U.S. Navy will have up to 1,090 warheads on its 240 deployed Trident D–5 SLBMs. Two hundred and forty Trident D–5s are capable of carrying 1,920 warheads, so those SLBMs would have an upload capacity of 830 SLBM warheads. As for the ICBM force, the planned 400–420 Minuteman III ICBMs will each carry single warheads, but each is capable of carrying three warheads, meaning an upload capacity of 800–840 ICBM warheads. When considering any cheating scenario, the Russians would have to bear in mind that the United States could respond in a matter of months by uploading more than 1,600 warheads, doubling the number allowed by New START. That should provide a significant disincentive to cheating.

CONCLUSION

Mr. Chairman, Senator McCain, members of the committee, there are compelling reasons for the Senate to give its consent to ratification of the New START treaty. That agreement serves the U.S. national interest: it will limit the number of strategic warheads that could target the United States, provide greater transparency regarding Russian strategic forces, allow the United States to maintain a robust deterrent, strengthen the U.S. hand in pressing to constrain proliferation, and contribute to a more positive U.S.-Russia relationship.

While one might wish for different provisions in some parts of the treaty—for example, a lower discount in the bomber weapon counting rule or greater access to telemetry—a treaty inevitably reflects compromises that take account of the other side's position. These points do not come close to outweighing the gains that will accrue to U.S. security from the treaty's entry-into-force. Moreover, a failure to ratify would carry substantial costs for the United States. Lack of New START's verification regime would deny us valuable insights into Russian strategic systems, and unpredictability would grow. The U.S. effort to curb nuclear proliferation would suffer. A failure to ratify would deal a major blow to U.S.-Russian relations, resulting in less cooperation from Moscow on problems such as Iran.

New START is in the U.S. national interest. The Senate should provide its consent to ratification. Finally, I would reiterate that, with the expiration of START I in December, the United States no longer receives the data on Russian strategic offensive forces provided by START I's verification regime. Early ratification and entry-into-force of New START will close this gap and restore a situation in which the United States has access to important information regarding Russian strategic forces.

Thank you for your attention.

Chairman LEVIN. Thank you very much, Ambassador.

Let's try 8 minutes, for our first round of questioning.

The New START treaty, in its preamble, recognizes that there is an interrelationship between strategic offensive arms and strategic defensive arms, and there's also an interrelationship that will be-

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borhood of 1,500. New START permits 10 inspections per year to confirm the number of warheads on individual ICBMs or SLBMs, but the "universe" of inspectable ICBMs and SLBMs will be far less than under START I—no more than 700 deployed ICBMs and SLBMs, if one were to make the unlikely assumption that the Russians deploy no heavy bombers and sustain a force of 700 deployed strategic missiles. One can infer from the July 2009 Russian proposal for the limit on strategic delivery vehicles—500—that Moscow plans to deploy fewer than 700 ICBMs and SLBMs. Some estimates by non-governmental analysts project a Russian deployed strategic delivery vehicle force under New START as low as 400. This would narrow the "universe" of inspectable ballistic missiles even further, again raising the odds of discovery of cheating.

come more important as strategic nuclear arms are reduced. That's not in the text, but it's in the preamble.

First of all, I guess, Dr. Payne, do you agree there are such interrelationships?

Dr. PAYNE. Yes, sir.

Chairman LEVIN. Why?

Dr. PAYNE. There are a number of interrelationships between offense and defense. For example, it seems to me that defense actually facilitates the reduction of offensive forces, because it eases the potential verification problems. In other cases, the deployment of defense might encourage offensive force production by a state that wants to overcome that defense. So, there are a number of potential linkages between offense and defense, and it seems to me that preamble acknowledges that.

Chairman LEVIN. The Congressional Commission on the Strategic Posture of the United States on which, I think, both you, Dr. Payne and Dr. Foster, served, where Bill Perry and James Schlesinger were the chair and the vice chair, recognized the relationship between the strategic offensive and defensive forces. It also said the following: "For more than a decade, the development of U.S. BMDs has been guided by the principles of protecting against limited strikes, while, two, taking into account the legitimate concerns of Russia and China about strategic stability." This Commission said that, "these remain sound guiding principles that defense is sufficient to sow doubts in Moscow or Beijing about the viability of their deterrence and could lead them to take actions that increase the threats to the United States, its allies, and friends."

Then, one of the recommendations of the commission was that while the missile threats posed by potential regional aggressors are countered, the United States should ensure that its actions do not lead Russia or China to take actions that increase the threat to the United States, its allies, and friends. Could you expand on that a bit, Dr. Payne?

Dr. PAYNE. I think what the commission was getting at was fairly clear in the words. The basic point is that U.S. missile defense, at this point, is intended to provide active protection against limited threats, such as those posed by rogue states. But that there, at least at this point, is not an intention to deploy missile defenses that might, for example, bring into question Russia's strategic capability.

Chairman LEVIN. You've raised article 5's paragraph 3 of the treaty, which prohibits converting ICBM or SLBM launchers to be launchers of missile defense interceptors and vice versa. I believe this is the only provision in the treaty that has a constraint related to missile defense options. But, it prohibits something the United States does not want to do, does not plan to do, does not make economic sense, and which, if it were not prohibited, could cause a dangerous and destabilizing miscalculation.

There's not been enough discussion of that last point, which is that this provision will avoid confusion and miscalculation. Both sides would be bound by the provision; it's not binding just on us. It prohibits, as I said, silo conversions that would be risky and, in other ways, unneeded and not planned. If either side could use silos for either nuclear missiles or missile defense interceptors, the

other side would not know, with certainty, what is in a silo and whether a nuclear missile is being launched from a missile defense silo or vice versa.

Let me start with you, Ambassador Pifer. Would you agree that it is in our interest to avoid that confusion and miscalculation?

Ambassador PIFER. I agree that would be a risk that if you put a missile defense interceptor in a silo in an ICBM field, if you had to launch that interceptor, the Russians would see the launch and might not understand that it was an interceptor, as opposed to an ICBM. Particularly, if that interceptor was heading in the direction, for example, of intercepting an Iranian missile, where it might be heading towards Russia, that could cause additional concerns about miscalculation.

Chairman LEVIN. Would you agree that while this is technically a limitation, it is a limitation that is binding on both sides, and is it a desirable limitation? Do you agree with that?

Ambassador PIFER. Sir, based on the testimony by General Riley, when he said it would cost him about $20 million per silo to convert an ICBM silo, as opposed to building a new silo, it seems to me that, yes, this is a constraint on missile defense. But, a constraint that prevents us from doing something that we would not do is probably a restraint that we could live with.

Chairman LEVIN. Okay. Mr. Miller, let me ask you a question. You said that tactical nuclear weapons are properly not part of the the New START treaty. I think all of you commented on the disproportionate number of tactical nuclear weapons in the Russian inventory, compared to ours. But, why, then, is it not part of the the New START treaty?

Mr. MILLER. Senator Levin, I believe that the New START treaty is focused on the strategic forces of both sides. The long-range forces that essentially could threaten each other. The tactical forces are clearly a political and a military threat to our allies. But, we have failed, for decades, to get our hands around that threat. My view is that this has to be handled in a separate treaty between the North Atlantic Treaty Organization (NATO) and Russia, a view subscribed to by former Secretary General of NATO, Lord George Robertson and Dr. Kori Schake. I believe that has to deal with, but in a different fora.

Chairman LEVIN. Ambassador, there's a number of critics who have pointed to a Russian unilateral statement on missile defense as an indication that Russia would withdraw from the New START treaty, if the United States pursues additional missile defenses. They've also suggested that the threat, or implied threat, might dissuade the United States from pursuing missile defenses, for fear of Russian withdrawal. However, is it not true that in the START I treaty, there was a similar unilateral statement by the then-Soviet government that the START treaty would only be effective and viable as long as the Antiballistic Missile (ABM) Treaty remained in force? Is it not also true that the United States eventually withdrew from the ABM Treaty, but that the Russian Government did not withdraw from the START treaty? So, would you, to put the third question all in one, agree that the Russian unilateral statement is not part of the treaty, is not binding on either side, it does

not prevent the United States from pursuing future missile defenses?

Ambassador PIFER. Senator, I would agree with that. The Russians did make a similar statement, in the context of the 1991 START I treaty, and did not withdraw from START I, even when the United States, in 2002, withdrew from the ABM Treaty.

I would also note that the day after the Russians made their unilateral statement, President Medvedev made a comment on this. He said that the Russians would not withdraw because of any American missile defense deployments. He said it would be missile defense deployments that would threaten the Russian strategic nuclear deterrent. Frankly, I do not find that an unremarkable statement, or, I don't find that a remarkable statement. I would assume that, if, in 7 years from now, the Russians had a missile defense capability that threatened our deterrent, we also would want the right to withdraw from the treaty. But, this is a unilateral statement. It is not legally binding.

Chairman LEVIN. Okay. Thank you all.

Senator McCain.

Senator MCCAIN. How does a defensive missile system threaten deterrence, Ambassador Pifer? You obviously have an exact opposite view of what missile defense does. Missile defense doesn't harm anybody's deterrence, it harms the ability of countries for first strike. I mean, you just made an Orwellian statement that, somehow, missile defense harms people's first-strike deterrent. It's amazing to me. Do you want to clarify your response you just gave to Senator Levin?

Ambassador PIFER. Yes, Senator. I think when you look at the question of missile defense, I look at it in the context of strategic stability. I think the Russian concern here is that a combination of an American first strike, which I do not think is at all likely, but an American first strike, and then the surviving Russian forces having to deal with an American missile defense, would call into question the ability of their nuclear deterrent. I think that's a fairly straightforward concern.

The Russians, when they look at the phased-adapted approach that we've adopted for the Standard Missile-3 (SM–3), I don't believe are concerned about the first three phases. But, when you look at what the Russians say, they say they are concerned about phase four, at the point where the SM might begin to have the capabilities against an ICBM system.

Senator MCCAIN. Well, I say, with great respect, you've just outlined what's wrong with the left's view of missile defense. I view missile defense as a way of inhibiting a first-strike motivation by the part of the Russians or anybody else, because it would prevent them from achieving their objective. Somehow, to view missile defense as a destabilizing factor, to me, frankly, is just, and I hate to use the word Orwellian, but it's in contravention to everything that Ronald Reagan stood for, everything that we have believed in. Defensive systems would inhibit and make uncertain the threat of a first strike against the United States of America, which is, of course, our greatest concern.

Dr. Payne, what do you have to say about this view that, somehow, development of missile defense systems is destabilizing?

Dr. PAYNE. Senator, I believe, on balance, that missile defense is much more likely to be stabilizing of the strategic relationship. As you pointed out, I think it's absolutely correct that missile defense can help ensure that no first-strike capabilities are going to provide a theory that any military planner is going to find useful. So, missile defense, by degrading the potential for a first strike being successful, should help stabilize the strategic relationship.

Senator MCCAIN. The whole purpose of a first strike is to destroy the enemy, because you know what's going to happen in response. So, the more likely that is to succeed, the more unlikely it is for our adversaries to try it. So, therefore, it seems to me, a robust missile defense system would be, as we have found out from Russian behavior in the past, has obviously been a deterrence for doing so.

This is really one of the fundamental differences we have in the New START treaty, because where the State Department says, "any Russian cheating under the New START treaty would have little effect, if any, on the assured second-strike capabilities of U.S. strategic forces." Dr. Foster, do you have a view on this fundamental argument here?

Dr. FOSTER. Senator McCain, it seems to me that missile defense provides for survivability of our offensive deterrent. It provides for survivability of a retaliatory strike, just as preparing the heavy bombers to depart, if there is an emergency, so that there will be a surviving second-strike capability.

Senator MCCAIN. Dr. Payne, does cheating matter? Do you agree that any Russian cheating would have little, if any, effect?

Dr. PAYNE. Senator, the standard that one uses to determine whether cheating would have any effect or not, seems to me to be the most important question. If you care about the flexibility and resilience of U.S. strategic forces, so that they can provide a credible deterrent, then, it seems to me, one has to worry about whether potential cheating can do that. I don't know whether Russian cheating under the New START treaty could threaten the flexibility and resilience of U.S. forces. That's a calculation that I can't make. But, it is certainly a question that we should address, not just whether cheating would threaten an assured second-strike capability, that's not the standard of adequacy for U.S. forces, it's whether cheating might threaten the resilience and flexibility of our retaliatory options.

Senator MCCAIN. It also brings into question whether there should be a treaty or not, if cheating doesn't matter. If cheating doesn't matter, then what's the point of a treaty, Dr. Foster?

Dr. FOSTER. Senator McCain, I don't understand why we go to the trouble of negotiating with a potential adversary with the understanding that the adversary is going to cheat.

Senator MCCAIN. I'd just like to raise this issue of the conflicting signing statements. Ambassador Pifer pointed out that President Medvedev made a statement and other Russian leaders have made statements exactly to the contrary. It seems to me that that issue should be resolved, in its entirety, before we should move forward with ratification. I didn't hear President Medvedev repudiate the signing statement. He didn't tell anybody of his negotiators to remove that signing statement. His foreign minister and other lead-

ing Russian officials have made the opposite statement, leaving a period of great ambiguity. With great respect, that signing statement, and relating it to START I and the ABM Treaty, I'm not sure is a parallel that is really operative.

Dr. Payne.

Dr. PAYNE. My concern, Senator, is in particular with the known history, as we might understand it, of Russian cheating. If we were engaged with a country that didn't have such a history, perhaps the concern about verification could be lowered. I'm reminded, for example, of the former Assistant Secretary of State who worked verification issues. She said that the level of Russian cheating has been intentional and widespread. She worked on the verification issues from 2005 to 2009, and she said, "in that history, you will find continued intentional Russian cheating."

So, in a sense, the level of verification that is the standard of adequacy depends on the party you're engaged with and, also, the standard of excellence that you subscribe to. In our engagement with Russia, it seems to me that we need to recognize that we are engaged with a party that has a history of, according to these U.S. officials who've looked at this issue, intentional cheating.

Senator MCCAIN. I thank you, Mr. Chairman. I thank the witnesses.

Chairman LEVIN. Thank you, Senator McCain.

Senator Goodwin.

Senator GOODWIN. Thank you, Mr. Chairman. I also would like to thank you and Senator McCain for your kind words of welcome and introduction. It certainly means a great deal to me to be here today, and I want to thank you for your time. It is an immense honor to represent the people of West Virginia in the Senate, and to have a chance to play a role serving on this esteemed committee where Senator Byrd dedicated so much of his time and energy. I know Senator Byrd had immense respect for this body, for this committee, and for his colleagues. I just wanted to take a moment to thank you all.

Chairman LEVIN. Thank you.

Senator GOODWIN. With that in mind, obviously I take very seriously the responsibility of considering the New START treaty, and want to thank the members of today's panel for their time. I look forward to ongoing comprehensive debate on this very extremely important matter in the days and weeks to come.

First question, I would direct to Mr. Miller. Talk a little bit about the provisions in the treaty, setting forth the signatory's ability to, in fact, objectively measure and verify compliance and be able to track cheating, as we've discussed.

Mr. MILLER. Senator, I believe that the New START treaty provides a series of onsite inspections and rules which, in combination, and I stress that, in combination with our own intelligence capabilities, allows us to have an adequate basis of determining whether or not the Russians are abiding by the rules in this treaty—not some other treaty, but in this treaty.

Cheating by the Russian Government, in this respect, would clearly represent a very significant political decision, and would be a great moment internationally. I think that the ability of the United States to be flexible and resilient as my colleague Dr. Payne

has talked about, depends on this committee, on the Senate, and on the House, because the flexibility and resilience is resident in our forces, in our intelligence capabilities, not whether the Russians cheat or not.

If we continue to fund our intelligence capabilities and do the treaty's monitoring steps, which we are permitted under the treaty, we'll increase our knowledge about what the Russians are doing. If we adequately fund our forces, we will continue to have the flexibility and resilience which I believe we have today, which will provide a secure basis should the Russians cheat or not, we have the capability to upload warheads on our Minuteman and Trident forces. If we cannot cause them to stop their cheating, we should get out of the New START treaty. But, that's quite down the road.

Senator GOODWIN. Let me follow up on your last point. If you could, talk a little bit about the flexibility embodied in the New START treaty that would permit us to withdraw or, in any event, act in our own national security interest if conditions would arise that would render provisions of the treaty in conflict with those interests.

Mr. MILLER. All treaties have a supreme national interest clause which allows a country to withdraw, should its supreme national interest be threatened by its continued participation in the treaty. This is a standard in arms control, as other treaties.

Senator GOODWIN. Thank you.

Ambassador, you referred earlier to how the failure to ratify this treaty could perhaps inhibit U.S. efforts to curb proliferation around the globe. Talk a little bit more about that for me.

Ambassador PIFER. Yes, Senator. As I said, I don't think it would apply in the case of North Korea and Iran, but I'm thinking about the next state that wants to go down the nuclear path. It seems to me that if the United States and Russia, which, between the two of them, control 95 percent of the world's nuclear weapons, are not working towards reduction, it is going to greatly undermine our diplomatic credibility in pressing other countries not to go down the nuclear route, but, more importantly, in enlisting the help of third countries to press those countries to avoid that. So, it's a matter of, are we setting the sort of nonproliferation example that will be useful to motivate pressure against countries that might choose to follow the examples of Iran and North Korea? I think if the United States now backs away from the New START treaty and says, we are not prepared to consider these sorts of reductions, our credibility on that question will be substantially undercut.

Senator GOODWIN. Dr. Foster, do you agree with that?

Dr. FOSTER. Yes. Sorry. Senator, yes, I agree. One has to look at both sides of this. It seems to me that, on the one hand, Russia has suffered economic decline. Their future growth in the nuclear weapons business will be paced, in part, by their economic recovery. On the other hand, looking at the U.S. side, whether or not we can maintain a nuclear deterrent depends on our commitment and our willingness to support that commitment. It seems to me, they're the two major uncertainties that drive the future.

Senator GOODWIN. All right. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Goodwin.

Senator Inhofe.

Senator INHOFE. Yes. Thank you, Mr. Chairman. Thank you for having this hearing.

I observed a long time ago when we were talking about the Law of the Sea Treaty, this is not a partisan statement, because that particular treaty—was pushed hardest by President Bush, I remember so well someone coming in from the Bush administration. I asked a simple question, that they're going to give up jurisdiction of over 70 percent of the surface, does that include the air above the surface? They didn't have an answer for it.

I think that we get into these treaties and everyone's for them. In the case of the Law of the Sea Treaty, that passed the Foreign Relations Committee 17 to 4. If it hadn't been for the fact that we just demanded to have hearings in this committee, as well as the Environment and Public Works Committee, that treaty probably would have sailed through. Of course, it hasn't yet.

Now, even when Thursday's behind us, we will have had some, I can't remember the exact number of the hearings but, some 30 witnesses. Of the 30 witnesses, the only 2 that have been opposed to this treaty are Dr. Payne and Dr. Foster, who are here at this one. So, it's kind of 28 to 2, I think that's a little bit uneven. But, nonetheless, I did make the request that we have some of the distinguished witnesses that were opposed to the New START treaty here, and I appreciate the fact that we did.

Now, Dr. Payne, let me ask you a question. I'm looking at this kind of simplistically. Russia is already down below the number of launchers that would be required under the New START treaty, as well as the warheads. Now, there is an article in the Washington Times, and I would just read one paragraph out of it. They're talking about Yuri Savenko the first deputy chairman of the Duma Defense Committee. He said, "Whether the Americans want it or not, they, after adopting the New START treaty, will give us a breathing space that we can use to reform and modernize the country's nuclear missile potential. So, if the"—he goes on to say—"So, if the Russian nuclear arsenal is getting smaller, anyway, but its leaders believe locking us into a reduction gives them time to improve it, why would the White House make the New START treaty centerpiece of the arms control strategy?" In other words, what we're requiring them to do, they're already doing. That really is unilaterally what we would have to do. Am I missing something here?

Dr. PAYNE. No, Senator Inhofe, I think you've put your finger on an important point. That is, one of the ironies of the New START treaty is, it appears not to require real reductions on the part of the Russians, or I should say, reductions that they aren't already making. At the same time, it would not prohibit a renewal of Russian capabilities well beyond the ceilings. As I said in my opening remarks, there are a number of loopholes in the New START treaty that would allow either party to go well beyond the numbers that are present in the limitations in the ceilings, in other words, 1,550 warheads, for example—very easy to go well beyond that ceiling if the Russian Federation has the financial and the production wherewithal to do that.

So, in short, the irony of the New START treaty is, it doesn't require real Russian reductions in the near term. In the far term, it's

not going to prohibit Russian renewal of its strategic capabilities, if Russia decides to do that.

Senator INHOFE. Yes, and that's essentially what the article said, and it seems very obvious to me.

On verification, Ambassador Pifer, you had talked about how you felt it had very strong verification. On the other hand, Dr. Foster, your first statement that you made was that you questioned the verification capabilities. When I look at it just numerically, the New START treaty has only, tell me if I'm wrong on this, 18 inspections a year, or that would be 180 over a 10-year period. During the START I, we conducted on the order of 600 inspections during the 15 years of START I. Tell me, is there not a relationship between the number of inspections and the verification credentials of a treaty? I'll start with you, and then ask Dr. Foster to respond.

Ambassador PIFER. Thank you, Senator. First, a couple of points on the START I verification regime. The 600 inspections, of course, included baseline inspections that were allowed when you went in and took a look at each site to establish your initial database which, since we've had 15 years of inspections continuing under START I, are not needed in the New START treaty.

In terms of numbers of inspection, on an annual basis, START I allowed the sides to conduct 28 inspections per year, whereas the New START treaty allows 18 per year. There are two points, though, I think that you need to factor in when considering that. First of all, in the case of START I, where you had 28 inspections a year, that was conducted against 70 sites. For the New START treaty, it will be 18 inspections a year, conducted against 35 sites. So, the universe is reduced by half.

Senator INHOFE. Okay. I don't want to use too much time here, real quickly.

Ambassador PIFER. The second point, very quickly, is for some of your type 1 inspections, 10 of the 18 inspections in the New START treaty are type 1, you actually do two things that you used to require two separate inspections, under START I. So, 18 is actually, maybe, more like 23, 24, in terms of START I.

Senator INHOFE. All right. Dr. Foster, do you agree with that?

Dr. FOSTER. Senator, yes I agree that there are fewer places to look, now that there's no longer a Soviet Union, but we just have Russia to be concerned with. So, that's the first point.

The other one has to do, however, with the fact that when you do inspections, you somehow have to have the concern that you may not find what you're looking for. Recall the situation we faced in Iraq. We knew that from the last time we were there that there were activities associated with nuclear weapons. When we went back the second time, with 1,000 or so folks looking, we didn't find any evidence. Where did it go? Look, it is so easy, in a large nation, to hide this stuff. It seems to me that we really should look skeptically at the matter of verification.

Senator INHOFE. Yes, I appreciate that. I think I was probably more upset than most people were when the administration took down the ground-based site in Poland, with what our intelligence tells us the threat is out there. We've talked a lot during this hearing about the missile defense requirement. I can only say that I think it was Serge Lavrov who made the statement, "The treaty

can operate and be viable only if the United States of America refrains from developing its missile defense capabilities quantitatively and qualitatively." To me, that's such a specific statement. Dr. Payne, is there any doubt in your mind, in terms of their wanting to use this to preclude us from pursuing improving our missile defense system?

Dr. PAYNE. No, Senator. There's no doubt in my mind that that's what they would like to do. The question will be, how vulnerable will we be to that kind of pressure. I think, for example, back to where the ABM Treaty's restrictions on strategic missile defense caused us to have a less robust theater missile defense capability than we otherwise would have had, for fear of violating the restrictions on strategic missile defense. We can look into the past, where there was no restriction on theater missile defense in the ABM Treaty, but we indeed made our theater defenses less capable than they otherwise could be, because we wanted to be very careful not to violate the spirit or the letter of the treaty. My concern is that the Lavrov statement and the other Russian statements that lay this out could have the same effect on U.S. decisionmaking.

Senator INHOFE. Okay. My time has expired, but I'd like just to ask, just for a real quick answer on, why wouldn't the tactical weapons be a part of the New START treaty? Dr. Payne, it would seem to me that that is something that should have had a lot of significance in this negotiation.

Dr. PAYNE. I think the real answer to that question, sir, is, they could not be part of this treaty because the Russians did not want to engage in negotiations on their tactical nuclear weapons. I think they'll be very wary about ever engaging in serious negotiations on their tactical nuclear weapons.

Senator INHOFE. Since they have a 10-to-1 quantitative advantage.

Dr. PAYNE. Because they are so valuable in the Russian military doctrine.

Senator INHOFE. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Inhofe.

Senator Reed.

Senator REED. Thank you, Mr. Chairman.

Mr. Miller, at this point, what are the legal enforceable verification restrictions against the Russians?

Mr. MILLER. The legally enforceable verification restrictions, Senator, are that the Russians will inform us on how many warheads a particular missile is loaded with.

Senator REED. At this point. Where are we today?

Mr. MILLER. At this point, none.

Senator REED. None?

Mr. MILLER. None.

Senator REED. So, we have no verification.

Mr. MILLER. No, sir.

Senator REED. No. What are the limits on Russian offensive and defensive missile systems, at this point?

Mr. MILLER. At this point, the Treaty of Moscow applies, so that the Russians would be in, what is it, 12 years? So, it'd be about 2014, the Russians would have to have between 1,700 and 2,200 strategic nuclear warheads under one set of counting rules. A dif-

ferent set of counting rules applies to the New START treaty. Essentially, the warhead numbers will be about the same. But, at a point in time, 12 years from 2002, when the Moscow Treaty was signed, the Russians have to be at 1,700 to 2,200 and nuclear warheads, full stop. For a brief moment in time. There are no limits on defensive systems.

Senator REED. I would assume, the Moscow Treaty that we're talking about would impose a verification regime which has lapsed, would also more effectively and more immediately reduce limits on the Russian missile systems. Is that correct?

Mr. MILLER. Yes, sir.

Senator REED. That's one reason, I presume, that you support the New START treaty?

Mr. MILLER. Yes, sir, it is. It is the verification. It is the fact that the Russians may not be building up their systems now, but this will set a cap in the future, and it will particularly set a cap on their ballistic missile systems, which has always been a cause of concern to U.S. national security planners.

Senator REED. Why would the Russians enter into the New START treaty with a verification regime, since none exists today, if their intention is to cheat?

Mr. MILLER. That's a more difficult question, Senator. I think that the Russians intend, at this point, to comply with the New START treaty. Future Russian Governments may play around the edges. There is a long history of the Russians doing that. That's why President Reagan said "trust but verify." We will be verifying.

Senator REED. Thank you. With respect to the issue of the relationship between defensive systems and offensive systems, if the Russians, today, were able to deploy an effective national missile defense system, what would be your recommendation—with respect to the number of warheads that we should have, offensively? Would it go up, or would it remain the same?

Mr. MILLER. If the Russians were, today, able to deploy an effective defense of Russia, our warhead requirements to maintain a deterrent would rise astronomically, as would our investment on penetration-aid technologies, and on a huge modernization of the bomber force.

Senator REED. Would that likely prompt a response by the Russians?

Mr. MILLER. Yes, sir. You would be back into the nuclear arms race of the 1950s, 1960s, and 1970s.

Senator REED. Isn't that the definition of nuclear instability?

Mr. MILLER. Yes, sir.

Senator REED. Dr. Payne, do you agree?

Dr. PAYNE. There are multiple definitions of stability. There's what's called "arms race stability." There's also "deterrence stability." In my comments earlier, where I indicated that I don't believe that missile defense is destabilizing, I was referring to deterrence stability, which is what I thought was the nature of the question.

Senator REED. No, I think you were referring to the United States deploying a missile system. But, if the Russians deployed a missile system, would you recommend that we maintain our current number of warheads?

Dr. PAYNE. If the Russians were to deploy missile defense, it would depend on the capabilities of those systems, as to whether the United States would respond with more ICBMs, SLBMs, or bombers. It may well make a lot of sense to avoid the ballistic missile threat if the Russian missile defense system is very effective, and move more towards bombers.

Senator REED. That would require new bombers with nuclear capabilities, correct? I'm not talking about one specific system, you would recommend that we be able to effectively deliver many more warheads than we have today.

Dr. PAYNE. No, not necessarily, sir. It may well be that if the Russians have an effective missile defense system, there wouldn't be any point in deploying more ballistic missiles because their system would be effective, so we could decide if we want to maintain deterrence based on retaliatory threats and move into greater emphasis on bombers, or we might decide we want to essentially mimic what the Russians are doing, in this case, have effective defenses of our own. Both sides would decide to have a relationship based on effective defenses.

Senator REED. Another way to look at this, if we deploy a very effective missile defense, the Russians might decide to use bomber forces or increased bomber forces, which effectively could negate our defense. Is that your point?

Dr. PAYNE. They could do that, sure.

Senator REED. Which means in many respects it's very difficult to achieve, by defense alone, a stable nuclear posture. Would you agree with that?

Dr. PAYNE. No, I wouldn't, sir.

Senator REED. Okay. I'm just a little bit confused. You posit that we can, with an effective missile defense, stabilize the system. But the Russians will always have a counter to our missile defense, either through conventional hypersonic weapons or through increased bombers. Is that correct?

Dr. PAYNE. Not necessarily so, sir. For example, Senator McCain said earlier that missile defense could help reduce the vulnerability of retaliatory forces. It's not clear to me, at all, that the Russians could have a response to missile defense for our retaliatory forces, that would be effective.

The issues aren't black and white. They're not clear cut. There are all kinds of nuances and permutations. The bottom line is, if we choose to maintain our relationship with Russia based on a retaliatory nuclear deterrent, obviously if they try and defend against that, we'll want to maintain the nuclear retaliatory deterrent. Perhaps it will be with bombers, rather than ICBMs, if they have an effective missile defense.

On the other hand, if both sides were able to deploy effective defenses, we could move towards what President Reagan was looking for in the past, and that is a relationship that is not based on mutual retaliatory threats, but on defensive capabilities on each side.

Senator REED. A purely defensive position.

Ambassador Pifer, what's your view on these issues?

Ambassador PIFER. There was a very broad look at missile defense back in the 1980s, and I think that we found the capabilities, to provide that kind of defense that would protect the United

States against a large-scale Soviet or Russian missile attack, was beyond the technological capabilities and beyond the budget realities. Every administration, actually, since President Reagan has talked more about a more focused missile defense system, looking at threats such as North Korea and Iran.

I guess I would disagree with Dr. Payne on the question of crisis stability. It does seem to me that if one side has a missile defense system, in a crisis, that will affect the other side's calculations as to whether or not to strike first or not.

For an example, and I think this is an extremely low probability event today, if you had a situation where there was an American missile defense that might blunt some of the Russian ballistic missile attack. The Russians have to calculate, if they are smarter to go first and launch first, against the United States, or run the risk of absorbing an American first strike. Then they have to launch their retaliatory forces, which would be significantly degraded, against an American missile defense. I do worry that missile defenses, in some configurations, in terms of the U.S.-Russia relationship, can be destabilizing in a crisis.

Senator REED. Dr. Foster, my time is expired, but if you could answer quickly.

Dr. FOSTER. Yes, Senator Reed. Let me just make a point that is relevant to the points that have been made before. First, what counts here is the offensive capabilities, the numbers, and the effectiveness of penetrating capabilities. Second, the effectiveness of the defenses, whether they are very large or small, compared with the offense. Currently, the U.S. has a large offense. The Russians have a small defense. The rogue nations have a small offense, and we can have a rather advanced, and as large as we want, defense. So, it depends a little on asymmetries on both sides.

Senator REED. Thank you very much, Dr. Foster.

Thank you, gentlemen.

Chairman LEVIN. Thank you, Senator Reed.

Senator Sessions.

Senator SESSIONS. Thank you, Mr. Chairman. I appreciate the fine discussion and good panel.

The New START treaty has been promoted as central to our nuclear policy and our national security, but I'm uneasy about it. I have several fundamental concerns. First, the administration has been far too anxious, in my view, to sign and get the New START treaty done. There are political benefits, I don't mean domestic political, perhaps that's a part of it, but that somehow, politically, signing the New START treaty is going to make the world more willing to eliminate nuclear weapons and put us on that path. I don't think that's a sound policy. But it's been part of the anxiousness, I believe, that has been affecting these negotiations, and has made our negotiating position weaker than otherwise would have been the case, and less beneficial to our security, in my opinion.

I think the negotiations were further weakened by the clearly stated goal of this administration of moving toward a nuclear-free world, which is unrealistic. More than that, it's dangerous and confusing to our allies and in some ways, destabilizing. This could even, in my view, cause other nations to see an opportunity to be-

come a nuclear world power, and cause proliferation, rather than restraining nuclear weapons, around the world.

Second, Russia, to my view, is not the most important threat to America right now. It is the largest threat, of course, by far. I think our security is most directly affected by Iran and North Korea, and we're doing very little about that. I think more of our focus should be on that, and other nations, too, that may have nuclear weapons that do not have the history of stability that the Russians and, prior to them, Soviets have shown in dealing with nuclear weapons. I think it could have the perverse effect of encouraging other nations to pursue the dream of being a nuclear competitor to the United States, rather than the other ones.

Finally, on modernization, I'm not confident about the plans on modernization. I'll ask some questions about that. I do believe there are limitations on missile defense. As Mr. Pifer noted, the phased adaptive approach eventually will result in phase IV, the SM–3 Block 2B, and they're going to object to that. Are they going to walk out of the treaty as a result of that? We've already foregone the two-stage missile defense system that we had planned for Central Europe. I guess it's some sort of good faith sweetener to these negotiations. I see no other good reason for it. Now, we've put this process off for another 5 years, before we get this SM–3 system up and developed. It wasn't even on the drawing board a few months ago. I'd say, it makes me nervous about what kind of commitment we have to missile defense.

The Russians are still irritable that we walked out of the ABM Treaty for very sound reasons. I don't think they'd hesitate to walk out of the New START treaty if they felt that we were going to proceed with even a limited missile defense system. I do agree, Ambassador Pifer, that we've never, at least in recent decades or two, we've not advanced the idea of a comprehensive missile defense system. But a limited one that could protect us from, perhaps, an accidental launch, or a rogue nation attack.

I do believe that we should have already begun very serious negotiations over tactical nuclear weapons which were not part of the New START treaty, because the Russians refused to talk about it, and we acquiesced.

This is my concern, I think this administration has a progressive, leftist aversion to national missile defense and to nuclear deterence. They don't like it, emotionally and otherwise. That vision, I think, is affecting policy, and it causes me to be uneasy.

One of the things we are dealing with is delivery systems. Dr. Miller's press reports indicate that the administration will invest $100 billion over the next 10 years in nuclear delivery systems. About $30 billion of this will go toward the development of a new strategic submarine. Of the remaining $70 billion, STRATCOM estimates the cost of just maintaining the current nuclear forces is approximately $56 billion. So, that would leave, if their estimates are not low, with just $14 billion for the triad, or what would follow on from that, the next-generation bomber, the follow-on ICBM, nuclear air-launched cruise missile, or Prompt Global Strike capability, conventional matter. Do you think that, if these facts are accurate, the $14 billion would be sufficient to move us toward a modernized delivery system?

Mr. MILLER. Senator Sessions, I can't do the math off the top of my head. I would like the administration to provide some concrete plans that we could judge whether or not the modernization that they intend is, in fact, adequate. I think that we basically need to see that for the Minuteman force. We need to understand what they intend to do with the bomber force and the air-launch cruise missile. I appreciate there's planning underway by the Navy for the follow-on to the *Ohio*-class submarine. To the best of my knowledge, there is not a full program up here in front of Congress to proceed ahead with that. I don't think they've gone through milestone A yet. I would like to see more progress by the administration in defining what they are going to do to modernize our strategic forces, which we're going to have to do whether we have the New START treaty in place or not. I'd also like to see progress, sir, on Prompt Global Strike, I would like to see something deployed sooner, rather than later. Research and development is terrific, but it doesn't provide an operational capability in the field. I'd like to see a program there.

Senator SESSIONS. Well, it was a very painful thing to me, when we debated the Prompt Global Strike, and President Bush proposed that, and Congress did not fund it. I do believe it was a mistake. I think it could really help our security and not cause the problems some suggested. But, we ask, as part of the last defense bill, as supported in, I think, section 1251 which call on DOD to set forth a 10-year plan on modernization of the triad and delivery systems. But we've gotten nothing back on anything other, I guess, than the submarine advancement. You would agree that we have to be serious about what we're going to do, make decisions, and then examine the budget to make sure there's sufficient funds to fund that?

Mr. MILLER. Yes, sir.

Senator SESSIONS. My time is up, Mr. Chairman. Thank you.

Chairman LEVIN. Thank you, Senator Sessions.

Senator Hagan.

Senator HAGAN. Thank you, Mr. Chairman. Thank you for holding this hearing, and I want to thank all of you for your testimony today.

The relations between Russia and the United States have evolved beyond what they were during the Cold War. Within this strategic context, and in the face of our aging nuclear stockpile, strategic arms reduction is in the best interest of both nations.

Ambassador Pifer, are there any specific provisions within the New START treaty that you feel make the United States less secure than we would be in the absence of this treaty?

Ambassador PIFER. Senator, there are certain points in the New START treaty that, in an ideal treaty, would be different. For example, I would prefer not to have seen such a discount on the bomber-weapon counting rule. It would have been preferable to have START I verification measures with regards to telemetry, so that we had full access to telemetry. But, a negotiation is a negotiation, and, sometimes, you don't get everything that you want. Although there may be things that I would like to see in the New START treaty, those points do not outweigh what, I think, is the overall compelling interest that the United States has in ratification and entry into force of the New START treaty.

Senator HAGAN. Some of the critics of the New START treaty have based their reservations on the fact that the New START treaty does not limit the tactical nuclear weapons. I know we've talked about that this morning. However, the Obama administration has made it clear that negotiating with the Russians on tactical nuclear weapons requires ratification of this treaty. Mr. Miller, I was wondering, as someone that's played a significant role in previous strategic arms reduction negotiations, how important is it, in ratifying the New START treaty, to facilitate discussion on tactical nuclear weapons?

Mr. MILLER. Senator, the connection is that if we don't ratify the New START treaty, we're back to the drawing boards on some sort of approach to strategic arms, and the tacticals are still going to get left behind. I do not see the New START treaty, in the future, that will lump the large Russian tactical stockpile in with the smaller strategic stockpiles on both sides.

I believe that the Russian Government needs to be called to account in front of every international forum, because it has a bloated, obscenely large tactical nuclear stockpile, which makes no military sense. What we have to do, in terms of reassuring our allies, is to ensure that, as the administration put forward in the NPR, that the Joint Strike Fighter has a nuclear role that we can deploy to Europe, and that the B–61 bomb that is deployed in Europe is modernized. We need to have that to reassure our allies. We need to keep embarrassing the Russians and pushing the Russians to reduce that stockpile which is really of no military significance in deterring us or our allies, as long as we modernize. But, it has political significance that they use to intimidate their near neighbors. It's that which we need to avoid.

Senator HAGAN. Dr. Foster, any comments on the tactical nuclear weapons?

Dr. FOSTER. Senator Hagan, yes, I think that tactical nuclear weapons are an integral part of a strategic security. Let me give you my reasoning. The tactical nuclear weapons in Russia, along with their nuclear doctrine, their declaratory statements, and the tailoring of a nuclear capability to attack their neighbors, threaten NATO, threaten U.S. military and civilian people there. Also, their tactical nuclear weapons aboard attack submarines with cruise missile capability armed with nuclear warheads off our coasts threaten both the east coast and the west coast. So, those are strategic threats, even though we call them tactical.

I agree with Mr. Miller that upgrading the life extension of the B–61 is critical. We may actually have to consider increasing the numbers of such deployments. Thank you.

Senator HAGAN. I think it was when Secretary Clinton was testifying she made the comment that we need to go ahead and ratify the New START treaty in order to continue negotiating with Russia on their tactical nuclear weapons.

Mr. Miller, the New START treaty does not prevent the United States or Russia from developing new strategic nuclear weapon capabilities. Do you anticipate the Russians developing new strategic nuclear weapon capabilities in the near future?

Mr. MILLER. Yes, I do.

Senator HAGAN. Any other comments from the other panel members? Dr. Payne.

Dr. PAYNE. The Russian Federation, right now, has a comprehensive strategic nuclear modernization program. The head of their defense acquisition program has said that this is the highest priority for Russian defense acquisition. The question right now is, how much money can Russia put to that program. That, I believe, is the bounding factor for them.

Ambassador PIFER. Senator, I would agree that for Russia, maintaining strategic nuclear parity with the United States, is a central factor and they will devote resources to ensure that. That's where I see the value in the New START treaty, we would then have a limit, in terms of how many Russian warheads could be deployed that could strike the United States.

Senator HAGAN. Thank you.

When START I expired, in December 2009, the respective verification and the compliance regimes expired with it. The Moscow Treaty, which is scheduled to remain in effect through the end of 2012, has no verification regime and relied upon those from the expired START I protocols. Ambassador Pifer, in absence of the New START treaty being ratified, what strategic arms verification procedures would be in existence between Russia and the United States? What impact will that have on ensuring compliance with the Moscow Treaty?

Ambassador PIFER. Well, Senator, as you stated, we no longer have the START I verification regime. The 2002 Moscow Treaty has no counting rules and no verification measures. So, right now, the only way that we have to monitor Russian strategic nuclear forces are national technical means of verification. We don't have the sorts of provisions that were in START I and that are in the New START treaty, for data exchange, inspections, and notifications.

Senator HAGAN. Thank you.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you very much, Senator Hagan.

Senator Thune.

Senator THUNE. Thank you, Mr. Chairman. Thank you all very much for providing your insights and responding to some of the questions that many of us have on this very important subject.

If I might, Mr. Miller and Mr. Payne, the 1251 Report provides a very troubling lack of specificity concerning force structure. Specifically, the administration's factsheet on the Section 1251 Report explains that the U.S. nuclear force structure, under the New START treaty could comprise up to 420 ICBMs, 240 SLBMs, and 60 bombers. Since deployment at the maximum level of all 3 legs of the triad, under that explanation, add up to 720 delivery vehicles, it is mathematically impossible for the United States to make such a deployment and be in compliance with the New START treaty's limit of 700 deployed strategic nuclear delivery vehicles. Clearly, additional reduction decisions are going to have to be made, with respect to the U.S. force structure under the treaty. Therefore, as I told Secretary Gates last month, I would be reluctant to cast a vote in favor of this treaty without being fully briefed in more precise detail, to my satisfaction, at least, about the plans

for our nuclear delivery vehicle force structure. So far, I've only been told that decisions will be made at some point in the distant future, and will be based on Russia's force structure. So, I guess I would ask, in your opinion, how do you think Russia will establish their force structure? Based on that, where do you foresee the additional reductions coming from in order to get to the 700 total deployed delivery vehicles that are limited to by the New START treaty?

Dr. PAYNE. Senator Thune, did you mean, how will the Russians, we believe, structure their forces under that? Or, how will the United States likely do that?

Senator THUNE. Kind of both. Because, what I've been told is that our decision will be made somewhat based on the Russian's force structure and how might they compose their arsenal? Then how might we, I guess, respond to that?

Dr. PAYNE. Okay. Yes, sir. The outlines of what the Russian's comprehensive modernization program might be there. The details, obviously, we don't know at this point. But, it appears that the Russians are going to move towards heavily MIRVed ICBMs, MIRVed SLBMs, and a new strategic bomber.

On the ICBM side, the Russians have already committed to the deployment of a new heavy ICBM which, presumably, will be able to carry a considerable number of MIRVed warheads. They've committed to the deployment of at least one new strategic bomber, and they have near-deployment, according to open sources, of a new air-launched nuclear cruise missile, the KH–102.

Since we put that all together, what you see is the Russians moving towards a lower number of launchers, probably considerably lower than the START I limits. But, of those launchers, the ICBMs and SLBMs will be heavily MIRVed. The bombers, because the New START treaty bomber-counting rule only counts one warhead and one bomber as one unit each, the Russians will be able to maximize the number of weapons on their new strategic bomber. What that might look like is an open question, now. They might go to 16 air-launched cruise missiles. Maybe they'd go to 20 air-launched cruise missiles. I don't know. But, what you see with that kind of force structure are numbers well in excess of the ceiling of 1,550, but within the bounds—within the terms of the New START treaty.

Senator THUNE. Right.

Mr. MILLER. Senator, I would say that we are not going to base our force structure on what the Russians are going to do. For a long time, we have avoided heavily MIRVed systems, and I think we have done so wisely. I think the Russians are foolish to invest in that, but that's their decision.

I think we will continue to have the heart of the deterrent based in the Trident force and in the Minuteman force, the Minuteman force being single-warhead systems. But, the administration does owe the Senate, Congress, an answer as to how many of each, and in what. The plan, as I understand it, for the follow-on to Trident, is to have 12 submarines, which is a number that I believe is barely adequate, but adequate.

But, as you pointed out, with the arithmetic of that 720, up to 60 bombers—well, we only have about 19 B–2s, at last count. That

means a decision needs to be made as to what's going to keep the B–52s viable. Otherwise, the other 40 bombers fall away without any kind of a viable delivery platform in a new air-launched cruise missile, or a modified air-launch cruise missile.

So, as I said in my opening remarks, I really believe that the heart of this lies in our own modernization. Those decisions are between Congress and the administration. Regardless of the New START treaty, we have to do something to recapitalize the existing strategic forces.

Senator THUNE. Well, it's a bit of a precarious situation for Senators who are being—we're being asked to provide advice and consent before obtaining a commitment on some of these follow-on delivery systems. What if the systems weren't replaced? How would this impact security, under the New START treaty?

I want to come back, just briefly, to the bomber issue because, according to the most recent briefs that I've seen, DOD expects the nuclear bomber force to remain in service through 2040. As you mentioned, 30 more years is a long time for a bomber that was built 50 years ago. Now, the proponents of the plan say they can last that long with upgrades. But, physically remaining in service is significantly different than remaining survivable in a future high-threat combat scenario. The NPR recognizes the need for a triad. Since the New START treaty is only for a 10-year period, how do you think the treaty will affect any plans to build a replacement bomber?

Mr. MILLER. I don't think that it will. I think we are free to do, under the New START treaty limits, what we choose to do. You're right that the B–52 airframe can be kept viable. The question is, what is the delivery system that it's carrying? The air-launch cruise missile was first deployed in 1980s. It is not as stealthy a system any more. We relied, at that time, on mass and what we euphemistically called defense suppression which meant ballistic warheads taking out key air defense sites. We need to have some sense from the administration as to what they plan to do, or what they propose to Congress to do to keep the B–52 force viable, if that is indeed the administration's intention.

Dr. PAYNE. Senator Thune, may I add to that? I associate myself with my friend Frank Miller's comments. I've only seen the unclassified version of the 1251 Report. But, what's most disturbing about it is what's not there. What we don't see is a modernization program for the ICBM, bomber, or a new air-launched cruise missile that would make it effective. What we don't see is a commitment to the deployment of conventional Prompt Global Strike. These are problems. Again, I agree with my friend Frank Miller that, if the United States would make a commitment to these modernization programs, at least for me, it would help mitigate some of the concerns I have about the New START treaty.

Senator THUNE. My understanding, too, is that the ICBM-based Prompt Global Strike platform would be counted against the 700 deployed-delivery vehicles. If we decide to develop that system, which, in your opinion, of the three legs of the triad, would be or should be further reduced to accommodate it?

Dr. PAYNE. I'm sorry, Senator, I'd rather not try and choose among them. But, what I would note is, because Prompt Global

Strike is based on an ICBM, or an SLBM, would count, under the 700 ceiling. Those numbers that Frank Miller mentioned earlier would have to go down below 700. The Prompt Global Strike would have to come at the expense of a bomber, SLBM, or ICBM.

Mr. MILLER. Could I just say, having been involved in the past, as has Dr. Payne, on the Prompt Global Strike, I think the numbers that we're talking about, in terms of Prompt Global Strike systems are quite small, on the order of tens of systems, certainly not hundreds. I do not think that taking about 40 nuclear warheads off and replacing them with conventional Prompt Global Strike systems will, in any way, undercut our deterrent. I don't think that has been talked about, as an issue. I don't think it's a treaty issue, as long as the administration commits to actually fielding a Prompt Global Strike system.

Senator THUNE. Thank you.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Thune.

Senator Chambliss.

Senator CHAMBLISS. Thanks, Mr. Chairman.

To all or our witnesses, thanks for your testimony today. This issue gets more complex the more we learn about it. Certainly all of you help bring forth the type of information that we're going to have to have to be able to think through this.

Dr. Payne, Mr. Miller, thank you for your generous time that you spent with my staff and me. I appreciate it. We look forward to continuing the dialogue with all of you as we move forward.

Let me go back to this tactical issue, again, because I have been very disturbed about that from day one. I want to make sure that I understand what all four of you have basically said here. In your opinion, there is no way that the Russians are going to negotiate, as a part of the New START treaty, the issue of tactical nuclear weapons. Am I correct? That bothers me to no end. Tell me what I'm missing here and why I can take comfort in the fact that they don't want to negotiate tactical weapons as a part of this? Dr. Payne?

Dr. PAYNE. Sir, to be honest, I don't believe you can take any comfort in the fact that they don't want to negotiate on this issue. It strikes me that one of the enormous challenges that will confront us over the next decade, is how to try and get a handle on their tactical nuclear weapons when they do not want us to get a handle on them.

Senator CHAMBLISS. Mr. Miller?

Mr. MILLER. Senator, I don't think there's a single magic treaty that's going to solve all of our issues with the Russian nuclear forces. I think we're going to have to take it, as we have in the past, one step at a time. We have not, for three administrations back to President Reagan, felt the need to match the Russians, in terms of tactical nuclear forces. We have felt the need to have a viable deterrent to offset that, knowing that if they started to use tactical nuclear weapons, the whole conflict would escalate to the strategic level quickly.

I view those weapons as a political threat. I view them as a threat because the weapons could be stolen or diverted to terrorists. I think we need to continue to press to get our arms around

them. But, I think throwing the New START treaty away because we haven't gotten our hands on the tacticals is not the way to approach this. I think we have to go after the tacticals separately.

Senator CHAMBLISS. Okay. Ambassador Pifer?

Ambassador PIFER. Senator, I would concur with Mr. Miller. It seems to me that if we did not ratify the New START treaty, we would then be back to square one. It would not make it easier to persuade the Russians to put tactical nuclear weapons into the negotiation. We would likely face the possibility that they would reopen some of the compromises that were reached in the New START treaty, and advance new demands of their own. It would not make it easier to get our hands around the tactical question.

Dr. FOSTER. Senator, going back to the earlier part of your question a reason that the Russians have taken a strategic position with regard to the United States is perhaps to reduce our influence and presence in Europe.

Senator CHAMBLISS. Going back to what Senator Thune was talking about, with respect to our nuclear triad and where we've been and how we go forward. It looks to me like, with the dependence on the B–52, the service life of that aircraft is going to be basically reaching an end in the next 2 or 3 decades, if it lasts that long. That airplane is at least 60 years old now, or older. We're going to reach a point where the B–52s have no mission here. Do you think the 1251 modernization plan adequately addresses this issue of where we go, with respect to a bomber? How important is that, with respect to the underlying strategic plan that the United States has been working under for decades now?

Dr. PAYNE. The 1251 Plan, as we've seen it publicly, indicates no commitment to bomber modernization, to a follow-on to the venerable B–52. At least as importantly, it indicates no commitment to a new air-launch cruise missile that would allow that platform to remain effective. That absence is one of the problems with the plan that we've seen.

Mr. MILLER. I agree with Dr. Payne. It's very difficult for all of you to fully consider the New START treaty without understanding the administration's modernization plans. It's seems to me that they go hand in hand.

Dr. PAYNE. I might add, Senator, that that's in the context of the Russians having made a commitment to the modernization of the strategic bomber force and to a new air-launch cruise missile.

Senator CHAMBLISS. Yes. Ambassador Pifer and Dr. Foster——

Chairman LEVIN. Senator Chambliss, could I interrupt you just for 1 minute, because I think Senator Thune may have to leave. I just wanted to give him some information on the subject that he was asking. Would you just yield to me for 1 minute on that?

Senator CHAMBLISS. Sure.

Chairman LEVIN. We have tried to schedule a time for DOD to come up and brief us on force structure. They've asked us, actually, to do that. We've had a briefing from Secretary Gates, in June, on what their baseline force structure is. But, in terms of your request, they are happy to come up. We're just trying to schedule a time. It may have to be Thursday afternoon. But, we'll keep in touch with you, because of your special interest in that subject.

Thanks for the interruption.

Senator CHAMBLISS. Sure. Ambassador Pifer and Dr. Foster, a major concern for me has been this issue of modernization and, in particular, the commitment not just of this administration but a commitment of Congress to put the dollars in place to make sure that we have the capability to modernize. What are your thoughts on the administration's budget, with respect to the next several years, and our ability to continue down the road of an adequate modernization plan? We've already seen that the House has taken several hundred million dollars out of that proposed budget. What would be the impact of not keeping the proposed budget at the level that the administration has set?

Ambassador PIFER. Well, Senator, in order, this is actually regardless of whether we have the New START treaty or not, for the foreseeable future, it is going to be important for the United States to have a survivable, effective, robust strategic nuclear deterrent. That's going to require that this administration, and successive administrations working very closely with Congress, assure that the resources are there to modernize the strategic deterrent.

Senator CHAMBLISS. Do you think this administration's proposed budget does that?

Ambassador PIFER. The proposed budget, as it's been described so far, puts us on a start in that direction. But, this is going to have to be continuous work between the administration and Congress to make sure that those plans are adequately funded, so that we can maintain the strategic deterrent.

Senator CHAMBLISS. Dr. Foster, any additional comment?

Dr. FOSTER. Yes, Senator. It seems to me that, regarding the first part of your earlier question, the B–52 has indeed lasted a long time, and it will be possible for the administration to maintain that bomber for a decade or two, no question. However, that bomber cannot penetrate. As a matter of some urgency, we need to develop an advanced cruise missile that can be reliable. Now, it also has to be advanced because it must penetrate. That's a technological challenge.

Next, when it comes to committing to do these things, there is the budget deficit issue. In the face of that, President Obama has committed to maintain the strategic deterrent for the foreseeable future. It may be that, because of the nature of our democracy, we really will not do what we should do, and face a crisis, and then do it.

Senator CHAMBLISS. My time is expired. But again, I appreciate your testimony this morning. While we all understand that we have no treaty now, we have no verification plans in place, this is a long-term treaty. It's unbelievable to me that we'd be discussing a treaty and, at the same time, discussing how likely it is that the other party to it is going to cheat, and how much they're going to cheat, and they have a history of doing this. There are a lot of reasons why this is going to have to take a lot of deliberation. Certainly we need a treaty of some sort with the Russians. Hopefully we can get ourselves satisfied on this one. But, a bad treaty would be worse, in my opinion, than no treaty at all. Again, we're going to be counting on you folks to continue to give to us the type of information we need to help develop, in our minds, exactly the way forward. I thank you very much for being here this morning.

Chairman LEVIN. Thank you, Senator Chambliss.

Dr. Payne, I made reference, in my questions to the report of the Congressional Commission on the Strategic Posture of the United States, on which you served. One of the statements that they made in their report, relative to missile defense, was the following "For more than a decade, the development of U.S. BMD has been guided by the principles of protecting against limited strikes while," this goes to a matter that you were talking to Senator Reed about. These are the key words, "taking into account the legitimate concerns of Russia and China about strategic stability. These remain sound guiding principles." Then this sentence, "Defenses sufficient to sow doubts in Moscow or Beijing about the viability of their deterrents could lead them to take actions that increase the threats to the United States and its allies and friends."

Now, when Dr. Perry and Dr. Schlesinger were here, they told us that the Commission's report, other than a section on Comprehensive Test Ban Treaty, was a consensus document.

Did you concur on that paragraph that I just read? You did?

Dr. PAYNE. Yes, sir.

Chairman LEVIN. It's important that, I wish our colleagues were all here to hear that, is an important statement. It adds an element to the discussion that you had previously.

The only other question that I have is for you, Dr. Payne, I think all the other witnesses were asked whether or not the rejection of the New START treaty would make it more likely that the Russians would engage in agreed-to limits on tactical weapons. I don't know that you were asked that question.

Dr. PAYNE. I'm sorry, sir. Could you repeat the question?

Chairman LEVIN. Yes. I'm not sure Dr. Foster was asked either, as a matter of fact. The other witnesses were asked specifically, just a few minutes ago, if the New START treaty were rejected, whether that would make it more likely that the Russians would negotiate a limit on the tactical weapons? Would the rejection of the New START treaty make it more likely?

Dr. PAYNE. I think it would likely be inconsequential in that regard.

Chairman LEVIN. Okay. Dr. Foster, I don't know if you were asked.

Dr. FOSTER. I agree with that position, Senator.

Chairman LEVIN. You agree with the one that——

Dr. FOSTER. I would agree that if the United States were to reject the New START treaty, it would make it more difficult to address, with Russia, the matter of tactical nuclear weapons.

Chairman LEVIN. Okay.

Thank you all. It's been very, very helpful. We greatly appreciate your service to our country and to your being here this morning. Thanks.

We'll stand adjourned.

[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

RUSSIAN TACTICAL NUCLEAR WEAPONS

1. Senator MCCAIN. Dr. Foster and Dr. Payne, in his written testimony before the Senate Foreign Relations Committee, Former Secretary of State Henry Kissinger

stated: "as strategic arsenals are reduced, the distinction between tactical and strategic nuclear weapons is bound to erode. The large Russian stockpile of tactical nuclear weapons, unmatched by a comparable American deployment, could threaten the ability to undertake extended deterrence. This challenge is particularly urgent given the possible extension of guarantees in response to Iran's nuclear weapons program and other programs that may flow from it." Do you agree with Dr. Kissinger's assessment?

Dr. FOSTER. I agree with Dr. Kissinger's statement. And statements by the Russian leadership indicate the importance of tactical nuclear weapons in Russian military strategy. The new Russian military doctrine, their tailored tactical nuclear capabilities and threats of nuclear attack against their neighbors and NATO has already caused some allies to express concerns. Urgent attention is required to maintain the U.S. extended deterrent.

Dr. PAYNE. No. The Russian 10:1 numeric advantage in tactical nuclear weapons already threatens the credibility of the U.S. extended deterrence. That asymmetry will worsen as the United States withdraws TLAM–N weapons. This threat to U.S. extended deterrence credibility is not a future concern, it is here and now. Several allies have been explicit about their concerns in this regard.

2. Senator MCCAIN. Dr. Foster and Dr. Payne, do you believe there is a significant interrelationship between strategic and tactical offensive weapons?

Dr. FOSTER. There is a significant interrelationship between strategic and tactical offensive weapons. Our so-called tactical nuclear weapons in Europe provide a strategic deterrent to Russia's tactical nuclear weapons that are a strategic threat to NATO. In the same way, Russia's tactical nuclear attack submarines armed with nuclear cruise missiles, when off our east and west coasts, pose a strategic threat to the United States.

Dr. PAYNE. Yes. In fact, the divide between tactical nuclear weapons and strategic nuclear weapons is largely artificial and a legacy of Cold War arms control practice. Shorter-range nuclear weapons (e.g., those that can be deployed on ships or aircraft) certainly represent a strategic threat to our allies and even possibly to the United States. In the past U.S. officials appear to have believed that a large, diverse U.S. strategic nuclear force structure could help compensate for deterrence purposes for the Russian numeric advantage in tactical weapons. That U.S. deterrence strategy will be undermined if we further reduce U.S. strategic forces to sustain strategic parity with Russia at considerably lower strategic force numbers while Russia maintains or increases its enormous advantage in tactical nuclear weapons. Several key allies have expressed concern about this development and, to date, the United States appears to have no alternative approach to maintaining credible extended deterrence and assurance in the context of the great Russian advantage in tactical nuclear weapons.

3. Senator MCCAIN. Dr. Foster and Dr. Payne, do you agree that the New Strategic Arms Reduction Treaty (START) should have at the very minimum established the framework for addressing tactical nuclear weapons?

Dr. FOSTER. I agree that New START should have included a framework for addressing tactical nuclear weapons. I suspect that our U.S. negotiators were aware of the value of establishing a framework for future negotiations on tactical nuclear weapons, however it's clear from Russian statements that consideration of tactical nuclear weapons was not to be a part of the negotiations for New START.

Dr. PAYNE. Yes. The United States should have attempted to use the considerable negotiating leverage it had in the New START negotiations to gain some agreement with Russia on tactical nuclear weapons. If agreement with Russia is possible on tactical nuclear weapons, this was the time to secure it. The United States is unlikely to have a comparable level of leverage in the future and Russia sees significantly increasing value in its tactical nuclear weapons; negotiating any serious (as opposed to a fig leaf) limits on those Russian weapons now will be more difficult, perhaps impossible. The administration's argument that the New START agreement was supposed to be about strategic nuclear weapons and therefore tactical nuclear weapons rightly were excluded is contradicted by the fact that other categories of forces were indeed included: the United States accepted some limitations on U.S. missile defense and on U.S. conventional strategic forces in this agreement. The bottom line in this regard is that the United States did not use its negotiating leverage to gain any concessions at the tactical nuclear level where Russia holds considerable advantage and appears to have gained very little in return for U.S. concessions at the strategic level where Russian capabilities in the near-to-mid term are declining with or without a treaty.

4. Senator MCCAIN. Dr. Foster and Dr. Payne, what leverage do we have to compel Russia to discuss reductions of its tactical arsenal in the future if we were to ratify the New START treaty?

Dr. FOSTER. Russia's several thousand tactical nuclear weapons are the deterrent to their perceptions of threats of a larger conventional military capabilities of the North Atlantic Treaty Organization (NATO) and China. So it's not simply a NATO/Russia concern, it's also a Russia/China concern, in that case over territory and energy resources. Having offered concessions, we have very little leverage left to compel or persuade Moscow to significantly reduce its tactical nuclear arsenal. Perhaps early U.S./China and Russia/China discussions to limit china's nuclear deployments and to reduce Russia's could help.

Dr. PAYNE. Little, and much less than before the negotiation of the New START treaty. In the Russian open press, Russian writers have described at length Russia's main negotiating goals and observe happily that Russian negotiators achieved all of those goals in the New START treaty with one exception: Russia was able to place considerable potential political limits on U.S. missile defense via the language in the preamble and Russia's own unilateral statement on missile defense, but it was not able to place many strict technical limits on U.S. missile defense. With this exception, the Russians appear to have gotten what they wanted. The Russian 10:1 numeric advantage in tactical nuclear weapons does not provide much or any direct negotiating leverage for the United States with regard to future negotiations on tactical nuclear weapons. Consequently, under current conditions, there appears to be very little potential "trade space" for the United States with regard to future negotiated reductions in Russian tactical nuclear weapons unless, perhaps, if the United States is willing to agree to Russia's desired restrictions on U.S. missile defense options, U.S. conventional capabilities, and U.S. space-based capabilities. In addition, again according to the Russian open press, there is no enthusiasm in Russia for another round of negotiations; since the signing of the New START treaty, Russian Foreign Minister Lavrov has underscored this by placing conditions on future negotiations that make any new agreements highly improbable.

VERIFICATION

5. Senator MCCAIN. Dr. Foster and Dr. Payne, during our hearing last week, I asked Jim Miller and General Chilton if they were concerned with an unclassified excerpt of a recent State Department report stating that "any Russian cheating under the treaty would have little effect, if any, on the assured second-strike capabilities of U.S. strategic forces." Both General Chilton and Dr. Miller said they agreed with the finding. Does cheating matter?

Dr. FOSTER. I think cheating can matter. The verification provisions in New START were the result of negotiations which limited the objectives of each side to guard against cheating. We do not know what the Russians might do that would matter and that we would not detect in time to react. I am not aware of any formal Red Team effort to identify and document Russian evasive actions that could significantly affect U.S. nuclear deterrence. So, to say that Russian cheating would have little effect is a judgment reached after some consideration of evasion, capabilities of U.S intelligence and the effectiveness of the verification provisions. Cheating could change the situation and then as General Chilton indicated, we would need to change force levels and be capable of an adequate response.

Dr. PAYNE. Cheating matters greatly whether or not it is deemed "militarily significant" by the State Department. Cheating at any level is significant because it reveals the character of Russia's commitment to the arms control process and the integrity of any agreement. If Russia is willing to cheat, why should we expect Russia to cheat only on matters of modest significance? In the past, the Soviet Union and Russia have cheated on matters large and small. To presume that because Russia has signed a treaty it is therefore committed to implementing its terms properly is counter to history since at least the 1930s. This is why tight verification provisions are essential when dealing with a country like Russia that has a track record of cheating. The New START treaty eliminated many such provisions that existed in the previous START treaty.

The apparent State Department conclusion that potential Russian cheating would have little effect on U.S. assured second strike capabilities and therefore can be viewed with some equanimity should itself be viewed with alarm, not as reassuring. The belief that assured destruction is the U.S. standard of adequacy for deterrence reflects a common but mistaken understanding of U.S. policy from the 1960s. For more than five decades the standard of adequacy for U.S. forces for deterrence and assurance purposes has mandated more force flexibility, survivability and resilience

than is required by a simple assured second strike capability alone. The inadequacy of that standard alone for credible deterrence and assurance has been recognized by Democratic and Republican administrations alike. The State Department's apparent resurrection of that long-rejected Cold War standard now in connection with New START is troubling because it suggests that an inadequate standard has been used to judge the verification provisions of New START.

6. Senator MCCAIN. Dr. Foster and Dr. Payne, do you agree that any Russian cheating would have little, if any, affect?

Dr. FOSTER. Any cheating by Russia could have little, if any effect, or cheating could have serious consequences. It depends on what they chose to do when we learned of it and how prepared we were to minimize the consequences.

Dr. PAYNE. No. Russian cheating could have significant political and strategic implications if the assumptions about the scope and timing of possible Russian cheating used in consideration of this question are less than optimistic.

7. Senator MCCAIN. Dr. Foster and Dr. Payne, what would happen if the United States could not detect in a timely manner the Russian deployment of 1,000 or 2,000 additional warheads?

Dr. FOSTER. It depends on Russia's strategic intent and future capabilities. If their intent were to develop a credible first strike capability, with an additional 1,000 or 2,000 warheads and other offensive and defensive capabilities and, the failure on our part to maintain our deterrent, that kind of situation could lead them to threaten an attack or at least coerce us to comply with their demands. For that reason we must have a dedicated focus on what they and others could be and are doing and maintaining capable and responsive U.S. forces.

Dr. PAYNE. Depending on the types of the warheads and delivery systems and the state of U.S. forces, such a level of cheating could significantly reduce the survivability of U.S. intercontinental ballistic missiles (ICBMs), bombers, and ballistic missile submarine (SSBN) not on patrol, and thus degrade the necessary flexibility and resilience of U.S. deterrence forces. This could undercut the credibility of U.S. deterrence strategies and increase the vulnerability of the United States and allies to attack or coercion. The modernization of U.S. strategic forces could help to reduce the vulnerability of U.S. deterrence strategies to cheating, but to date the administration has not committed to any comprehensive modernization program.

8. Senator MCCAIN. Dr. Foster and Dr. Payne, does the fact of no consequences undercut the need for and validity of the New START?

Dr. FOSTER. Yes. The assertion of no consequences invites evasion and weakens our grounds for compliance.

Dr. PAYNE. The claim of "no consequence" is not a "fact". And, if it were true, there could be no corresponding claim that the treaty and its verification measures are of great importance. If no level of cheating can be of consequence, then the verification provisions of the treaty and the treaty itself cannot be of great importance.

9. Senator MCCAIN. Dr. Foster, in your prepared remarks you state that you believe the New START verification regime is "inadequate to give us the depth of knowledge that we will need, given Russian military doctrine and modernization programs." Please elaborate on your concerns regarding Russian modernization and why you feel this treaty abandons the "Trust but Verify" approach?

Dr. FOSTER. Given the track record of Soviet/Russian evasions of past treaties does justify much "trust" in treaty negotiations. The verification provisions of New START are inadequate because Russian leadership has given highest priority to the development of a modernized strategic nuclear deterrent and it's supporting infrastructure. They have announced their commitment to a new bomber, new mobile and silo based and mirved ICBMs and a new SSBN with new mirved missiles. The limited inspections, denial of the previous assembly plant's monitoring facility and now more limited telemetry on missile firings do not provide the knowledge we need for verification of Russian compliance with New START over the next 10 years.

NATIONAL NUCLEAR SECURITY ADMINISTRATION MODERNIZATION

10. Senator MCCAIN. Dr. Foster, in his prepared remarks for our hearing last week, Dr. Michael Anastasio, Director of Los Alamos National Laboratory stated that he "fear[s] that there is already a gap emerging between expectations and fiscal realities" and that he is "concerned that in the administration's section 1251 report,

much of the planned funding increase for weapons activities do not come to fruition until the second half of the 10-year period." Do you share Dr. Anastasio's concerns? If not, why?

Dr. FOSTER. I share Dr. Anastasio's concerns regarding the inadequacy of the funding identified in the administrations section 1251 report. Three aspects cause my concern.

- First, the requirements for the facilities were set and the designs laid out before the economic decline and call for procedures, level of risk acceptance and capabilities, while nice to have, may no longer be considered appropriate. A thorough Department of Defense (DOD)/Department of Energy (DOE) scrub of the level of risk acceptance and required, as opposed to desired, capabilities is called for.
- Second, the DOE track record of escalating construction costs on some past facilities requires that special attention be given to details of the contract and management of costs, both at NNSA and on-site, with clear descriptions of responsibilities, authorities and accountabilities of the assigned individuals.
- Third, if the appropriated budgets for these facilities are inadequate the concern is that funding will come from reductions in the warhead surveillance, and science and technology programs, as has occurred in the last 5 years.

11. Senator MCCAIN. Dr. Foster, should some of the funding outlined in the 1251 report be shifted to the first half of the 10-year period?

Dr. FOSTER. That may be important to reduce near-term risk but it would make the out-year budget situation even worse. I think that now is the time to face up to the realities. More funding will be needed in the first few years and even more funds will be needed in the second half of the 10-year period.

WEAPONS COMPLEX INTELLECTUAL INFRASTRUCTURE

12. Senator MCCAIN. Dr. Foster, as I stated in my opening remarks, you along with nine other former lab directors sent a letter to the Secretary of Defense and the Secretary of Energy stating that you believe the administration's Nuclear Posture Review (NPR) will have a negative impact on the ability of the nuclear weapons complex to recruit and retain the best and brightest talent. In your letter you state that this "higher bar" for certain life extension programs (LEPs) will "stifle the creative and imaginative thinking that typifies the excellent history of progress and development at the national laboratories." Please elaborate on the concerns you and the other former lab directors raised in your letter.

Dr. FOSTER. This elaboration on the concerns expressed in the letter reflect my views and may not represent those of other ex-directors. I think it is important to understand the situation the laboratories are facing regarding their ability to attract the best and brightest to a career in nuclear weapons.

- Weapons work is performed in secure areas requiring security clearances and unclassified research and publication is not easily accommodated.
- The constantly increasing controls and procedures imposed to assure safety, security and compliance led the 1999 Commission chaired by Adm. Chiles (Ret) to conclude that "worker feelings range from anger to resigned despair".[1]
- The laboratories have not been permitted to perform underground tests for 18 years, not designed, developed and deployed nuclear warheads for about 20 years. And President Obama has launched a priority initiative to take concrete steps to nuclear zero. And now, in performing refurbishment of the aging warheads, if their preferred nuclear approach were to use a different previously tested but not stockpiled nuclear component, that approach would require review and approval by the Secretary of Energy and the President. Such a review would likely involve still more involvement and reviews by outside scientists and engineers judging the technical risks of the directors' approach compared to other approaches. As a consequence, the laboratories are likely to avoid proposing the approach that would lead to still more reviews.

[1] 1999 Report of the Commission on Maintaining United States Nuclear Weapons Expertise. The 2008 DSB Task Force report "Nuclear Deterrence Skills", also chaired by Adm. Chiles, found "no change" regarding "expanded personnel flexibility".

In my view the preference of the administration to avoid different nuclear components on technical grounds does further stifle the creative and imaginative thinking of the nuclear design laboratories.

VERIFICATION: POTENTIAL FOR STRATEGIC INSTABILITY

13. Senator MCCAIN. Dr. Foster and Dr. Payne, it appears that both Russia and the United States will have the capability to upload large numbers of warheads in fairly short order. This raises the prospect that if a crisis occurred and tensions were running high, each side might take measures to prepare to upload warheads. Actually uploading the warheads in excess of the treaty's limits would be a violation, but making preparations to do so would be legal. If in a crisis, the Russians suddenly revealed that they had twice the number of warheads that were limited by the treaty, would you view that as a dangerous situation?

Dr. FOSTER. Yes, if the crisis situation, such as described, were to develop that caused the Russians to up-load twice the number of deployed warheads allowed under New START, it would indeed be a dangerous situation for at least three reasons.

- The nature of the crisis apparently compelled Russia to increase its' strategic military posture and capability.
- Although each nation has a large number of non-deployed warheads, a two-fold increase in deployed capability implies that the Russians may have made available more delivery capability for those warheads than we had assumed.
- It would raise questions of intent. Had they been planning to achieve strategic superiority? And we would need to know the status of Russian tactical nuclear units off our coasts and near our allies.

Yes, it would be a "dangerous situation".

Dr. PAYNE. The actual situation is somewhat worse than described in the question. The treaty itself allows the possibility of Russian deployment of several thousand weapons beyond the treaty's ceiling of 1,550 deployed warheads within the terms of the treaty. Russia would not have to violate the treaty to have several thousand deployed warheads, possibly including long-range nuclear weapons not covered by the treaty such as long-range sea-launched cruise missiles. Nevertheless, the uploading scenario described in the question would be particularly dangerous given the hostile political context and intent assumed in the scenario. In addition, the level of "breakout" described could undermine the survivability of U.S. ICBMs, bombers and SSBN not on patrol, and thus undercut the flexibility and resilience of U.S. deterrence forces. This could reduce the credibility of U.S. deterrence strategies at precisely the time when their credibility would be crucial.

14. Senator MCCAIN. Dr. Foster and Dr. Payne, how important would it be for the United States to have timely and accurate warning that the Russians were preparing for, or had actually achieved, a rapid and large breakout of the treaty's warhead limits?

Dr. FOSTER. Obviously it would be very important. The information from Russian civilian and military leadership provides adequate evidence to support on the one hand an expectation that Russia will seek peaceful compromises with its' neighbors, NATO and the United States. On the other hand, it also supports concerns that Russia will seek to regain dominant influence over the former states of the Soviet Union and that the United States is its enemy. In our efforts to maintain the National security of the United States and its allies, it is important that we make every effort to have timely and accurate information on potential military capabilities, including those associated with breakout.

Dr. PAYNE. It could be critical to help prevent a Russian "breakout" that could degrade the credibility of U.S. deterrence and assurance strategies in a crisis. Accurate warning of such a development could be crucial to the survivability, flexibility and resilience of U.S. forces necessary for credible U.S. deterrence strategies.

15. Senator MCCAIN. Dr. Foster and Dr. Payne, the Russians are known for their secrecy, denial, and deception in operating their strategic forces. Is there a potential danger that, again in a crisis, the United States could misinterpret some Russian strategic activities as breakout? If so, could that result in a series of other escalatory moves?

Dr. FOSTER. In a crisis there is a concern that both sides can misinterpret the information and initiate actions that can lead to a series of reinforcing escalatory moves by both sides.

Dr. PAYNE. The incentives for escalation in a breakout scenario are likely to be greater in the context of relatively low force levels. Any actual or seeming Russian breakout as described above could trigger an escalation process leading to war, particularly if it took place in the context of low force levels and an acute political-military crisis such as the 1962 Cuban Missile Crisis or the 1973 Yom Kippur War. The outbreak of World War I had some of these characteristics.

PROMPT GLOBAL STRIKE

16. Senator MCCAIN. Mr. Miller, Dr. Foster, and Dr. Payne, while the New START treaty does not prohibit the development and deployment of long-range conventional strike capabilities, it does stipulate that conventional warheads placed on ICBMs or submarine-launched ballistic missiles (SLBMs) will be counted under the overall strategic nuclear warhead ceiling. Do you feel we should be concerned that this treaty may impede the development and deployment of our future prompt global strike capability?

Mr. MILLER. No. I do not believe the Treaty impedes the development and deployment of our future prompt global strike capability. What has impeded that development and deployment has been the inability of Congress to authorize and appropriate funds for such a program. The United States could have a highly affordable and effective prompt global strike system based on the Trident II/D-5 missile deployed in little over 2 years if only Congress would fund it.

Dr. FOSTER. Yes, it may. I think that in the future, the need for a prompt global strike capability and the associated number of missiles required will increase. But I don't see that our need for such a capability to require the United States to reduce the strategic nuclear deterrent. For the next 10 years a New START treaty could trump the deployment of a Prompt Global Strike capability. We need to also consider prompt precision strike capabilities that do not use Triad assets and perhaps some are deployed offshore.

Dr. PAYNE. New START does limit the deployment of some conventional prompt global strike (CPGS) options by requiring the United States to reduce its nuclear forces on a 1:1 basis for each ICBM or SLBM-based CPGS missile. Senior U.S. military leaders have said that in general conventional forces should not be considered substitutes for nuclear weapons on a 1:1 basis or even on a 10:1 basis. Nevertheless, New START's 700 deployed launcher ceiling would require a 1:1 reduction of nuclear force launchers under that ceiling for each such CPGS launcher deployed. This is a concern because it constrains the numbers of what appears to be the quickest deployable CPGS options and because the United States appears not to have gained any Russian concession in return for limiting CPGS options in this fashion. Over the course of the treaty (10–15 years), the United States may have a requirement for many such CPGS systems, but the treaty essentially precludes the United States from deploying that capability beyond very small numbers.

17. Senator MCCAIN. Mr. Miller, Dr. Foster, and Dr. Payne, how could this trade-off affect the development and deployment of our future prompt global strike capability?

Mr. MILLER. The projected number of required prompt global strike systems is quite small. The trade-off with nuclear systems under the treaty should not, therefore, impose any constraints on or delay to the fielding of a prompt global strike system. As I indicated in my answer to question 16, the United States could field such a system in about 2 years time if Congress would only fund it.

Dr. FOSTER. General Cartwright, Commander STRATCOM, and more recently as Vice-Chairman of the JCS, has supported the development of a Prompt Global Strike capability. The DOD requested the budgets for Navy and Air Force proposed programs in 2006. Congress did not support the requests but did authorize funds for research and technology development.

The DOD continues to state the need for a PGS capability. New START would require a trade-off of PGS missiles against Nuclear ICBMs and SLBMs. Near term, trading off a few tens of the 1,550 nuclear missiles for an initial PGS capability may be acceptable numerically. My concern is that we fail to emphasize that strategic nuclear deterrence and the capability to provide a prompt and very local destruction of a fleeting target opportunity are two very different and unrelated national needs. The needed numbers in each case will change independent of the other. Any consideration of trade-off should not affect the development and deployment of PGS.

Dr. PAYNE. This trade off denies the United States the option of any large number of what may be the most near-term and least costly CPGS options. This situation created by New START is likely to reduce the potential for sustainable support for

the development and deployment of these options in favor of more distant and more expensive CPGS options not limited by New START.

DEPARTMENT OF DEFENSE MODERNIZATION

18. Senator MCCAIN. Mr. Miller, Dr. Foster, and Dr. Payne, the NPR set forth a broad vision that must not be viewed outside of the realm of affordability. The cost alone for modernizing both the nuclear weapons complex and the triad are substantial, and as we move to reduce the size of our nuclear stockpile, this modernization effort becomes all the more important. Factoring in the cost of missile defense and prompt global strike—both essential and critical, but also costly, programs—the overall budget outlook seems to suggest steady the need for increases for the foreseeable future. What is the near-term and long-term affordability of implementing the NPR?

Mr. MILLER. I believe the answer to this question must await the publication by the Department of Defense of its plan to modernize the ICBM and bomber legs of the Triad.

Dr. FOSTER. It is important that the administration's near-term focus has been on persuading Congress to fund the turn-around of the National nuclear enterprise and the maintenance of the nuclear strategic deterrent and studies on modernization of the Triad to maintain nuclear deterrence for the foreseeable future. A near term priority focus is necessary to learn of and understand the possible objectives, strategies, plans and programs of China which could require major changes in U.S. objectives, strategies, force structures and possibly a heavy long term financial burden.

Dr. PAYNE. The $10 billion per year over 10 years apparently identified by the Obama administration for modernization of the U.S. strategic nuclear force structure is likely to be far short of what will be necessary for the maintenance of existing systems and even the most basic, essential modernization steps.

19. Senator MCCAIN. Mr. Miller, Dr. Foster, and Dr. Payne, how important is it to replace our bomber, ICBM, and air-launched cruise missiles?

Mr. MILLER. I believe it is critically important that the United States maintain a modern and effective ICBM force. I await with interest DoD's plan to do so. The issue of the bomber leg is more complicated. There is a critical need to maintain a force of penetrating bombers because those systems perform missions which ICBMs and SLBMs cannot. The need to maintain the B-52/air-launched cruise missile element of the bomber force is more complicated.

Dr. FOSTER. There seems to be a consensus on the need to replace the venerable B–52 strategic bomber, air launched cruise missiles, ICBM, Trident submarine and its missile by 2030–40. Studies are currently underway to determine the appropriate characteristics.

My sense is that we need to think about the possible surprises and asymmetric capabilities of adversary strategic offensive and defensive systems that could be deployed 20 to 30 years from now. It is important to maintain the unique characteristics of the present triad's, signaling intent, responsive command control and survivability of a credible deterrent, especially with reduced numbers. Future threat systems should be expected to provide precision targeting of fixed and moving targets, advanced ASW and improved ballistic missile and air defenses. It is important that the current studies focus on potential future adversary capabilities in determining the kind of capabilities we should develop to provide for a viable, survivable future U.S. nuclear deterrent. My concern is on the need to move beyond the study phase and develop modern replacements. This would also help the urgent need to sustain critical skills and technologies and production capabilities in our defense industrial base.

Dr. PAYNE. If these legs of the triad are not modernized, beginning with an ICBM life-extension program and a modern air-launched cruise missile program, U.S. strategic forces are likely to lose much of their flexibility and resilience which will undermine the credibility of U.S. deterrence and assurance strategies. This consequence of delayed or aborted modernization must be understood. In addition, delay could have a profoundly negative effect on our already fragile industrial base to support strategic capabilities.

QUESTIONS SUBMITTED BY SENATOR JEFF SESSIONS

FUTURE NUCLEAR WEAPONS REDUCTIONS

20. Senator SESSIONS. Mr. Miller and Dr. Payne, according to the 2010 NPR, "The President has directed follow-on analysis to the NPR . . . to set goals for future U.S.-Russia reductions in nuclear weapons below New START levels." Would additional reductions in U.S. ICBMs, SLBMs, and heavy bombers, and their associated warheads/bombs, below those contained in the New START treaty be desirable?

Mr. MILLER. I have never believed that reducing nuclear weapons to meet specific numerical goals makes sense. If arms reduction is to be of value, it must strengthen strategic stability. The acid test for any reductions proposed below the levels of New START should be examined and evaluated only in that light.

Dr. PAYNE. Further limits could be reasonable and desirable under certain conditions. For example, further nuclear reductions could be reasonable if the threats to which U.S. strategies of nuclear deterrence and assurance apply (e.g., nuclear, biological and chemical threats) manifestly decline, and appear unlikely to arise again. Or, further nuclear reductions could be reasonable if an international organization is established that can be relied upon to monitor globally, enforce international standards (e.g., strict controls on all WMD), prevent international conflict, and thereby provide security for the United States, allies and other countries. Even under these conditions, any further U.S. nuclear reductions should avoid further limits on U.S. missile defense and CPGS, and should include deep reductions and limitations respectively on Russian tactical nuclear forces and Chinese forces. The prospects are highly questionable for serious limits or even serious transparency measures (as opposed to fig leaves) on Russian tactical nuclear weapons and other possible WMD, and on Chinese nuclear forces and other possible WMD.

21. Senator SESSIONS. Mr. Miller and Dr. Payne, what are the key considerations to take into account when contemplating lower U.S. nuclear force levels?

Mr. MILLER. The key considerations in contemplating any additional reductions in U.S. strategic nuclear force levels are as follows:

- Can we maintain an adequate safe, secure, reliable and credible deterrent at the proposed level?
- Can we reassure our allies that we can continue to provide a "nuclear umbrella" over them at the proposed level?
- Does the proposed reduction increase or decrease strategic stability?

Dr. PAYNE. First is the fundamental need to maintain the credibility, flexibility, and resilience of U.S. forces for deterrence purposes. This becomes increasingly difficult as force numbers decline and these characteristics become even more important for U.S. forces at lower numbers. Another consideration is the need to assure allies and friends regarding the credibility, effectiveness, and reliability of the U.S. extended security commitments. Nuclear weapons are a critical element to that assurance goal for key allies, including, for example, Japan and South Korea.

22. Senator SESSIONS. Mr. Miller and Dr. Payne, are you concerned that at lower levels the military will not be able to carry out its deterrence missions?

Mr. MILLER. This question cannot be answered until the outlines of any proposed additional reduction are put forward.

Dr. PAYNE. U.S. deterrence missions are larger than military missions. Deterrence is a national mission dependent on all elements of U.S. power, including nuclear weapons. The military is the steward of these weapons that are intended to support national missions such as the deterrence of threats and the assurance of allies. Yes, I am concerned that at lower force levels U.S. nuclear forces will lack the flexibility, resilience, and survivability necessary to support U.S. national deterrence and assurance missions. Only comprehensive U.S. nuclear modernization programs specifically intended to maximize these characteristics at low U.S. force levels, would be likely to address this potential problem.

23. Senator SESSIONS. Mr. Miller and Dr. Payne, are you concerned about the survivability of U.S. forces at lower levels?

Mr. MILLER. The lower the level of U.S. strategic forces, the more the issue of survivability comes into play. If U.S. forces are to be reduced in the future, the United States must resist the budgetary temptation to reduce the number of SSBNs. As I understand it, the administration's plan for SSBN–X is that it will have 16 rather than 24 tubes: this is a step in the right direction. Similarly, the administration's plan, as I understand it, is to "neuter" in a verifiable manner launch tubes on the

existing *Ohio* SSBNs rather than cut the number of SSBNs in the force; this, again, is a strategically wise move.

Dr. PAYNE. Yes. The problem is that New START reduces the number of U.S. launchers significantly, but places no limits on Russia's MIRVed ICBM payloads and only very porous limits on the number of deployed warheads. This combination is ripe for increasing the vulnerability of U.S. strategic forces unless the United States simultaneously undertakes a modernization program designed to preserve force survivability at low launcher numbers. That was not a requirement with the existing legacy Cold War-era systems and would be a new design requirement.

24. Senator SESSIONS. Mr. Miller and Dr. Payne, doesn't detecting cheating, i.e. strong verification, become more important at the lower levels imposed by New START?

Mr. MILLER. Yes.

Dr. PAYNE. Yes. At New START's lower force levels cheating could threaten the survivability, flexibility, and resilience of U.S. forces—particularly if those forces are not modernized specifically to preserve those characteristics at low force levels. The administration's apparent claim that Russian cheating could not be of strategic significance because it could not threaten a U.S. "assured second strike capability" is a non-sequitur because the standard of adequacy for U.S. forces for deterrence and assurance purposes is not simply an assured second strike capability. U.S. force survivability, flexibility, and resilience are important force characteristics for credible deterrence and assurance, and those characteristics could be jeopardized by cheating, by a rapid "break-out" from the treaty, or simply by the covert exploitation of the treaty's many loopholes.

25. Senator SESSIONS. Mr. Miller and Dr. Payne, are you concerned that other countries may view lower U.S. force levels as an opportunity to gain parity with the United States in nuclear capability?

Mr. MILLER. I do not believe that if the New START treaty is ratified, and the United States moves to the 700/1,550 limits that any third country would view this is an opportunity to gain parity.

Dr. PAYNE. Yes. The potential for U.S. reductions to serve as an inducement for greater Chinese nuclear efforts is a reasonable concern under two plausible conditions: if the United States does not modernize its nuclear forces as is possible under New START, and/or if, as the administration emphasizes, New START is only the first step in a transition to deeper reductions that could be such an inducement for China. Russian open sources express precisely this concern vis-à-vis China. It should be noted that China is likely to continue the expansion and modernization of its nuclear forces with or without New START. In addition, the loopholes in New START's ceilings on launchers and warheads give the United States the option of retaining several thousand nuclear warheads under the terms of the treaty-a level that would be unlikely to induce greater-than-normal Chinese nuclear efforts.

26. Senator SESSIONS. Mr. Miller and Dr. Payne, are you concerned that at lower levels of U.S. forces, our allies may come to doubt the credibility of U.S. nuclear security guarantees—especially if the Russians maintain large numbers of tactical nuclear weapons?

Mr. MILLER. I do not believe that our allies and friends will have any reason to doubt the credibility of U.S. nuclear security guarantees at the 700/1,550 New START limits. I do believe, however, that Russia's stockpile of short-range nuclear weapons vastly exceeds any reasonable political or military requirements and that Russia should be convinced to carry out dramatic reductions of those weapons. My views on this are captured in the article I co-authored in February 2010 with former NATO Secretary General Lord Robertson and Dr. Kori Schake "Germany Opens Pandora's Box.".

Dr. PAYNE. Yes. This is a serious concern as evidenced by numerous allied comments along precisely these lines. Allied doubts about the credibility of U.S. security commitments could undermine alliance relations and encourage nuclear proliferation among some allies and friends. Again, dedicated U.S. nuclear force modernization and the development and deployment of other strategic force programs, including missile defense and advanced conventional strategic forces, could help to ameliorate this problem.

NUCLEAR WEAPONS COMPLEX BUDGET

27. Senator SESSIONS. Dr. Foster, the administration's budget plan for NNSA stockpile and infrastructure costs is rather flat in fiscal years 2012 and 2013. According to the 1251 report, "the plan to 'ramp up' investment over time reflects the reality that the complex is constrained in its ability to rapidly absorb new funding." Do you agree with the administration's assessment that the nuclear weapons complex cannot absorb funding increases over the next few years?

Dr. FOSTER. I do not agree with that assessment. It is my understanding that more funds are needed than are in the fiscal year 2010–2013 budgets for such programs as the backlogged surveillance programs, the delayed actions to correct SFI's, the delayed initiation of the B–61 Life Extension work, initiation of dual revalidation, conduct of more laboratory experiments and tests on DHART, NIF, Z–Machine NTS, etc. Efforts were made to reduce the funds requested by the labs and plants but I do not know details of a process that found that the complex cannot absorb funding increases over the fiscal year 2011–2013 budgets.

QUESTIONS SUBMITTED BY SENATOR JOHN THUNE

NUCLEAR DELIVERY VEHICLES

28. Senator THUNE. Mr. Miller and Dr. Payne, press reports indicate the administration will invest $100 billion over the next decade in nuclear delivery systems. About $30 billion of this total will go toward development and acquisition of a new strategic submarine. According to estimates by U.S. Strategic Command (STRATCOM), the cost of maintaining our current dedicated nuclear forces is approximately $5.6 billion per year or $56 billion over the decade. This leaves roughly $14 billion of the $100 billion the administration intends to invest—even less if you factor in inflation. This $14 billion is not nearly sufficient to develop and acquire a next generation bomber, a follow-on ICBM, a follow-on air launched cruise missile, and develop a CPGS capability. In light of these figures, do you think that $100 billion is a sufficient investment in our delivery systems over the next decade? If so, why?

Mr. MILLER. I do not have the necessary detailed visibility into the DOD budget to provide an answer to this.

Dr. PAYNE. Given these numbers, there is no doubt that the amount identified is far short of that required to modernize U.S. strategic forces as necessary to support credible strategies for deterrence and assurance.

29. Senator THUNE. Mr. Miller and Dr. Payne, with the aging of the ICBM and with current bombers becoming less and less survivable, how is $14 billion enough to replace two thirds of our triad?

Mr. MILLER. I do not have the necessary detailed visibility into the DOD budget to provide an answer to this.

Dr. PAYNE. $14 billion over a 10-year period would be insufficient to modernize each leg of the triad. In the very near-term, modernization would require, at a minimum, a life-extension program for the Minuteman ICBM and the development and deployment of a new air-launched cruise missile for the bomber force. It should be noted in this regard that the 2009 report of the bipartisan Congressional Strategic Posture Commission included unanimous agreement that the United States should maintain the strategic triad.

30. Senator THUNE. Mr. Miller and Dr. Payne, during testimony before this committee last July, General Cartwright expressed the view that he would be very concerned about the viability of the triad if we got below 800 deployed delivery vehicles. The New START treaty establishes a level of 700 deployed strategic delivery vehicles. I note that General Cartwright stated this concern after the NPR team had already conducted detailed analysis in the spring of 2009 to determine negotiating positions in the New START treaty on an appropriate limit on strategic delivery vehicles. Why should we not be concerned, given that this number is 100 below General Cartwright's comfort level?

Mr. MILLER. As one who has spent many years directing on U.S. nuclear deterrence policy, my own view is that the force structure the United States is able to field a credible, survivable, and robust deterrent under the 700 deployed strategic delivery vehicles limit. I do not believe General Cartwright and I disagree on this. My understanding is that General Cartwright believes that the Treaty is in the security interests of the United States.

Dr. PAYNE. New START's reduction of U.S. deployed strategic launchers to 700 launchers is the treaty's most significant force limitation. Achieving a strict limitation on U.S. launchers was, according to the Russian press, the priority goal for Russian negotiators. The number of Russian deployed launchers already is below 700, and according to numerous open Russian press reports, with or without New START the number of accountable deployed Russian launchers will continue to decline and will remain below 700 for the foreseeable future. Consequently, New START's launcher limit essentially is of consequence only for the United States. In addition, to the extent that the United States deploys conventional PGS based on ICBMs or SLBMs, the number of launchers available for U.S. strategic nuclear forces will be reduced on a 1:1 basis. So, in reality, the number of deployed nuclear launchers possible under New START will be below 700 with the deployment of such conventional PGS.

We should be concerned about this ceiling on U.S. launchers because the number of available launchers is one of the primary factors determining the flexibility, survivability, and resilience of U.S. strategic forces, and thus their credibility for deterrence and assurance. I concur with General Cartwright's apparent initial view that the United States should not agree to the reduction of launchers available for U.S. deployed strategic nuclear forces below 800. And, that number should not be reduced further by the U.S. deployment of conventional PGS. A ceiling of 800 actual deployed strategic nuclear launchers would allow room for a reasonable level of flexibility and resilience in the deployment of the U.S. triad. Why the United States accepted an actual number for deployed nuclear launchers well below 800 (and below 700 if counting possible U.S. PGS deployment) when the Russian number of launchers already was headed down far below 800 with or without New START appears to be inexplicable. This situation is particularly troubling in the absence of any apparent administration commitment to comprehensive modernization of the triad.

31. Senator THUNE. Mr. Miller and Dr. Payne, if the former Commander of STRATCOM is concerned about reducing our delivery vehicles below 800, shouldn't we be concerned as well?

Mr. MILLER. Please see my answer to question 30.

Dr. PAYNE. Yes. That concern could be ameliorated to the extent that the administration commits to a comprehensive strategic nuclear modernization program designed to maximize strategic force flexibility, survivability, and resilience at low force numbers. Modernization would also help sustain important industrial capabilities in the United States.

32. Senator THUNE. Mr. Miller and Dr. Payne, what do you believe were the assumptions going into the START negotiations that drove our level of acceptance to reduce to these numbers?

Mr. MILLER. Negotiated outcomes are a complex result of many factors. I would direct your question to the administration since I did not participate in the negotiations of advise the negotiating team.

Dr. PAYNE. In open testimony, senior military leaders have identified assumptions behind the analysis that apparently allowed the acceptance of New START numbers:

1. Russia would comply with New START limits;
2. there would be no requirement for an increase in U.S. forces; and,
3. U.S. planning guidance would remain the same.

These are extremely optimistic assumptions. For example, the assumption that Russia will comply with treaty obligations is not supported by past Russian or earlier Soviet behavior.

1251 REPORT AND FORCE STRUCTURE REDUCTIONS

33. Senator THUNE. Mr. Miller and Dr. Payne, the 1251 report provides a very troubling lack of specificity concerning force structure. Specifically, the administration's fact sheet on the section 1251 report explains that the U.S. nuclear force structure under the New START could comprise up to 420 ICBMs, 240 SLBMs, and 60 bombers. Since deployments at the maximum level of all three legs of the triad under that explanation add up to 720 delivery vehicles, it is mathematically impossible for the United States to make such a deployment and be in compliance with the treaty's limit of 700 deployed strategic nuclear delivery vehicles. Clearly, additional reduction decisions need to be made with respect to U.S. force structure under this treaty.

In your expert opinion, how do you think Russia will establish their force structure and based on that, where do you foresee the additional reductions will come from in order to get to the 700 total deployed delivery vehicles that we are limited to by this treaty?

Mr. MILLER. I believe that the Russian strategic force under New START will be ICBM-heavy, with many of those ICBMs MIRVed. The Russians are seeking to produce as much force for as little spending as possible. Our own forces, however, need to be structured to meet our requirements, not anyone else's. Those requirements include survivability, credibility, and robustness. I believe the answer to the question as to where the postulated reduction of 20 deployed delivery vehicles will occur is that they will be taken from either the ICBM leg or the bomber leg. This depends, in turn, on the administration's decisions on the future of the B–52/ALCM element of the bomber leg of the Triad.

Dr. PAYNE. Based on my reading of open Russian analyses of Russian forces, I expect that for the next decade Russia will have no more than 500 accountable deployed strategic launchers—at least 200 below the New START ceiling. Russian numbers could improve if energy prices increase greatly and provide Russia with windfall resources to boost spending on strategic forces (Russian military leaders have stated openly that strategic nuclear force modernization is Russia's highest defense priority). At relatively low launcher numbers, Russia will take advantage of New START's lack of restrictions on MIRVing and MIRVed payloads, and will slowly introduce new, heavily MIRVed ICBMs and SLBMs into its arsenal. Russia also is likely to take advantage of New START's permissive warhead counting rule for bomber weapons. As a result, I expect Russia to have 2000 or more actual strategic warheads under the Treaty on fewer than 500 accountable launchers. If Russia cheats and has the necessary resources, the number of warheads could be much higher.

34. Senator THUNE. Mr. Miller and Dr. Payne, with the New START's limitations going into effect within 7 years, at what point do we need to begin making the changes necessary to comply with this treaty?

Mr. MILLER. I no longer am sufficiently familiar with the specific timelines involved and so I cannot provide a useful answer to this question.

Dr. PAYNE. We probably would need to begin within 3–4 years, although the administration could begin the reductions more quickly if it chose to do so.

35. Senator THUNE. Mr. Miller and Dr. Payne, will we know what the Russia force structure will be by that point, in your judgment?

Mr. MILLER. No.

Dr. PAYNE. We can anticipate some features of the Russian force structure 7 years out based wholly on open Russian sources-with the understanding that some variation is inevitable. The Russian force structure will likely be characterized by a relatively low number of accountable ICBM, SLBM and strategic bombers (i.e., strategic launchers) because during this period Russia will continue deactivating its old Cold War strategic launchers more rapidly than it replaces them with new systems. Consequently, the number of Russian strategic launchers accountable under New START will continue to decline well below the New START ceiling with or without the treaty. The number of Russian deployed strategic launchers in this timeframe will probably be fewer than 500 accountable launchers (again, based on Russian open sources), including new ICBMs and SLBMs that are MIRVed. In addition, according to open Russian sources, Russian forces are likely to include new long-range air-launched cruise missiles (which would be accountable under New START as a single weapon per bomber regardless of how many might be deployed on each bomber), and also a new long-range sea-launched cruise missile that probably will not be accountable under New START. Given New START's counting rules, the actual number of deployed Russian warheads could be well above the treaty's 1,550 ceiling under the terms of the treaty.

36. Senator THUNE. Mr. Miller and Dr. Payne, how important is it to replace our bomber, ICBM, and air-launched cruise missile force?

Mr. MILLER. As I indicated in my response to question 19: "I believe it is critically important that the United States maintain a modern and effective ICBM force. I await with interest DOD's plan to do so. The issue of the bomber leg is more complicated. There is a critical need to maintain a force of penetrating bombers because those systems perform missions which ICBMs and SLBMs cannot. The need to maintain the B–52/air-launched cruise missile element of the bomber force is more complicated."

Dr. PAYNE. It is critical for credible deterrence and assurance purposes. This is true with or without the treaty. With the treaty and any further nuclear reductions, however, it will be essential to modernize the smaller arsenal to maximize its survivability, flexibility, and resilience at low force numbers. The earliest need is for a Minuteman LEP and the development of a new air-launched cruise missile. The existing cruise missile is approximately 25 years old and a modern replacement must be a priority.

37. Senator THUNE. Mr. Miller and Dr. Payne, Senators are in a precarious situation, being asked to provide advice and consent before obtaining a commitment to follow-on delivery systems. What if these systems were not to be replaced? How would this impact U.S. security under New START?

Mr. MILLER. I believe it is critically important to our security and that of our allies that the United States maintain a deterrent based on a modernized Triad of SLBMs/SSBNs, ICBMs, and bombers.

Dr. PAYNE. In the absence of a much more benign international threat environment, if these systems are not replaced the capacity of U.S. forces to support critical national deterrence and assurance goals will erode; the continued lack of modernization would eventually create a very dangerous context for the United States and allies. It would increase the probability of attacks on the United States and allies, undermine key U.S. alliances, and lead to greater incentives for nuclear proliferation.

SURVIVABILITY OF THE BOMBER FORCE

38. Senator THUNE. Mr. Miller and Dr. Payne, according to the most recent briefs I have seen, DOD expects the current nuclear bomber force to remain in service through 2040. Thirty more years is a long time for a bomber that was built 50 years ago. Proponents of this plan say they can last that long with upgrades. However, physically remaining in service is significantly different than remaining survivable in a future high threat combat scenario. Since the NPR recognizes the need for a triad, and since the treaty is only for a 10-year period, how do you think this treaty will affect any plans to build a replacement bomber?

Mr. MILLER. The treaty should not—and does not—affect our plans to build a replacement bomber. That decision should be made on the basis of the contribution of such a replacement bomber to the viability and credibility of our deterrent.

Dr. PAYNE. This treaty should encourage the development and deployment of a new strategic bomber given the inherent flexibility offered by bombers and the precedent the treaty sets for extremely permissive counting rules for bomber weapons. Whether the administration will take advantage of this element of New START remains an open question. Russia already has announced its plans to build at least one new strategic bomber. The modernization of the U.S. air-launched cruise missile probably is as important as are modernization plans for a new bomber itself. In a heavy air defense environment, a new long-range air-launched cruise missile will contribute to the continuing credibility of strategic bombers. Consequently, modernization of the bomber leg of the triad needs to be seen in terms of bomber and cruise missile modernization.

39. Senator THUNE. Mr. Miller and Dr. Payne, my understanding is that an ICBM-based prompt global strike platform would be counted against the 700 deployed delivery vehicles. If we decide to develop that system, which of the three legs of the triad, in your opinion, should be or would be further reduced to accommodate it?

Mr. MILLER. My understanding is that the number of prompt global strike systems needed to meet U.S. national security requirements is fairly small. I favor an SLBM-based system. The administration is also looking at an ICBM-like option. In either case, deploying a small number of prompt global strike systems should be compensated for under the treaty by retiring an equivalent number of "like" systems, that is, SLBMs in the event of a sea-based deployment or ICBMs in the event of a land-based deployment.

Dr. PAYNE. Developing and deploying CPGS weapons on ballistic missiles (ICBMs and SLBMs) would be the most timely option for fielding such a capability. However, given the treaty's limits on CPGS, my recommendation would be to pursue a CPGS system that is not accountable under New START and to keep the number of treaty-accountable CPGS low, i.e., no more than 25–35. Each leg of the triad could be reduced by some fraction of that number. The goal of this approach would be to do the least damage possible to the integrity of the triad as a whole.

CONFLICTING MESSAGES TO THE NUCLEAR FORCE

40. Senator THUNE. Mr. Miller, Dr. Foster, and Dr. Payne, in an effort to build up the nuclear enterprise, the Air Force recently accomplished an extensive restructuring which included, among other things, adding a new Global Strike Command, adding an additional B–52 nuclear capable bomber squadron, and multiple changes to procedures and testing. This was all part of a tremendous and ongoing effort to reinvigorate the nuclear enterprise. However, by ratifying the New START it would seem we are providing conflicting guidance to our nuclear forces and telling them we want to draw down and scale back the nuclear mission. For example, the New START would specifically reverse the directions the Air Force was just given to build up the B–52 nuclear capability by cutting the number of nuclear capable B–52s.

Are you at all worried that the reduction in force structure that the New START establishes, will undercut the Air Force's improved emphasis on the nuclear mission, especially now that the Air Force has made great strides toward fixing the problems it had a few years ago?

Mr. MILLER. I am not worried. I believe the question sets up a false premise. Air Force nuclear units exist to serve national requirements; the reverse is not true.

As a member of the Secretary of Defense Task Force on DOD Nuclear Weapons Management ("the Schlesinger Task Force"), I was in the forefront of calling for increased Air Force attention to its nuclear role. I strongly believe the Air Force has made great improvements in its nuclear force management and that Air Force personnel involved in the nuclear mission area understand the critical importance of their jobs. Whatever Air Force nuclear force structure emerges from the administration's plans and Congress' approval of those plans, airmen will continue to serve in nuclear roles in the ICBM force and in the bomber force. They will be expected by their leadership to perform to the highest professional standards.

Dr. FOSTER. The Air Force's refocused effort to maintain a nuclear deterrent for the foreseeable future is very important. It will require a couple of decades just to rebuild the career paths and capabilities in all aspects of nuclear deterrence. The numbers of delivery vehicles and warheads must change in response to the needs of national security.

I am not particularly worried by the changes that would be required by New START because I believe the current DOD and Air Force leadership are fully committed and will sustain the recovery near term. Longer term, it will be important to guard against budget pressures and other national priorities that could again degrade nuclear deterrence. The Air Force will need, of course, the support of Congress in order to be successful.

Dr. PAYNE. Yes. The potential negative political effect of New START on the needed revitalization and modernization of U.S. strategic programs, including missile defense, is a great concern. Arms control agreements in the past have had a powerfully negative political effect on subsequent U.S. programs not technically limited by treaty. This tendency in the U.S. political system may now be stronger because this administration has emphasized that New START is a transitional agreement toward further reductions and the ultimate goal of nuclear zero, and that movement in this direction is this administration's top nuclear policy goal. The actual prospects for another strategic force agreement and nuclear zero are limited and infinitesimal respectively. Nevertheless, given the administration's stated top priority goals in this regard, the necessary revitalization and modernization programs will be seen by many as inconsistent with the priority direction of U.S. policy. It will be difficult to maintain this internal inconsistency in the likely context of defense budget austerity.

41. Senator THUNE. Mr. Miller, Dr. Foster, and Dr. Payne, how will these reductions affect our long-term recruiting and retention efforts at our labs?

Mr. MILLER. The national requirement to maintain safe, secure and reliable nuclear weapons will exist irrespective of any arms reduction agreement. If Congress fully funds the administration's request to modernize the DOE nuclear weapons complex I believe recruiting and retention will meet the nation's needs.

Dr. FOSTER. The reductions that would be required specifically by New START will not directly affect the work scope required at the Laboratories; their work scope is principally determined by the need to refurbish the currently deployed systems and not by the number of warheads. However, the reduction in the numbers of weapons coupled with the President's goal of a "nuclear zero" could affect the long-term recruiting and retention efforts of the laboratories' nuclear warhead programs by creating the perception that maintaining the health of the nuclear weapons program is not a national priority. The New START treaty could stimulate the labora-

tories ability to attract new personnel and enlarge programs to support the monitoring, inspections and the provision of associated capabilities.

Dr. PAYNE. I would like to defer to Dr. Foster on all questions regarding recruitment, careers, retirement and expertise at the National laboratories. Dr. Foster has unparalleled experience and knowledge regarding these questions.

RECRUITMENT AND RETIREMENT ISSUES WITHIN THE LABS

42. Senator THUNE. Dr. Foster and Dr. Payne, 2 weeks ago, Dr. Anastasio, Director of the Los Alamos Lab, stated in his testimony that the average age of career lab employees is now over 48 years old and that 32 percent of all career employees are expected to retire within the next 5 years. In addition, General Kevin Chilton, the current head of STRATCOM, said 2 years ago that "the last nuclear design engineer to participate in the development and testing of a new nuclear weapon is scheduled to retire in the next 5 years." Does this cause you some concern? Why or why not?

Dr. FOSTER. Yes. I am concerned about the lack of programs at the design laboratories to provide engineering/production design-related challenges and experience to the next generation of warhead designers and engineers. The nuclear laboratory directors have been increasingly concerned over the last 20 years because college graduates have become less attracted to a career in nuclear weapons. A more immediate concern relates to General Chilton's observation that few scientists and engineers remain who have had nuclear warhead design, engineering, production and nuclear test experience. To properly train those that have not had that experience would require that they, in integrated teams, design, engineer, prototype and flight test one or two different kinds of warheads in the immediate future. But Congress has rejected such activity often because it could lead to a "new" warhead, a new military capability which some asserted could provide an additional reason for nonnuclear nations to proliferate. While the United States is the only nuclear nation with such self-imposed restrictions, it has prevented the United States from providing the best opportunity to train and develop competence and proficiency in the teams responsible for maintaining our nuclear warheads.

Dr. PAYNE. I would like to defer to Dr. Foster on all questions regarding recruitment, careers, retirement and expertise at the national laboratories. Dr. Foster has unparalleled experience and knowledge regarding these questions.

43. Senator THUNE. Dr. Foster and Dr. Payne, what are we doing under the current limitations of experimenting and testing in order to preserve nuclear design expertise?

Dr. FOSTER. Current design, engineering production and testing and experimentation on the newly built facililties has been limited, particularly in the last 5 years by congressional restrictions on design-related programs and successive reductions in weapons funds available to the laboratory and plants. The Future Years Defense Program (FYDP) 2011–16 budgets, particularly if appropriations are increased would make major changes in the whole nuclear enterprise.

The best remaining opportunity to train the laboratory and plant teams of scientists, engineers and plant personnel is to undertake aggressive and competitive revalidations of the warheads that are overdue for Life Extensions.

Dr. PAYNE. I would like to defer to Dr. Foster on all questions regarding recruitment, careers, retirement and expertise at the national laboratories. Dr. Foster has unparalleled experience and knowledge regarding these questions.

44. Senator THUNE. Dr. Foster and Dr. Payne, can you describe the relationship between the limitations placed on continuing to pursue scientific advances and our ability to recruit younger individuals to pursue this type of career?

Dr. FOSTER. The ability to recruit younger individuals to pursue a career particularly in nuclear warheads is limited by their perception from the following situation:

- Nuclear testing has not been permitted for 18 years.
- The recent U.S. policy goal to take concrete steps to a global nuclear zero
- The nuclear weapons inventory and associated funds have generally been reduced over the last 20 years.
- Creative challenges, such as developing new types of nuclear designs have been blocked by Congress.
- Funding limitations have restricted the number of experiments that can be performed on the newly constructed and existing facilities.
- Currently, there is a priority focus on security safety, procedures and oversight. This is important work, but may not be attractive to the best

young talent. Nevertheless younger people would be attracted to work at the Laboratories if the unique facilities in computers, DHART, MESA, the Z–Machine and the more creative opportunities in "Work" for others are available to them.

Dr. PAYNE. I would like to defer to Dr. Foster on all questions regarding recruitment, careers, retirement and expertise at the National laboratories. Dr. Foster has unparalleled experience and knowledge regarding these questions.

45. Senator THUNE. Dr. Foster and Dr. Payne, what impact will these near-term retirements have on the knowledge level required to certify the reliability of nuclear weapons?

Dr. FOSTER. Near term the performing teams will not be receiving the training and experience they need before the more experienced leaders retire. The backlog of warhead surveillance does not provide confidence that we have a thorough current understanding of some of the potential failure modes and unacceptable aging of components. Even the Significant Findings Investigations mandatory corrections are behind schedule. Recent funding restrictions have reduced laboratory experiments and tests and delayed the introduction of plant equipment to improve inspections and efficiency.

These are the kinds of things that limit the knowledge that laboratory directors need to assess and certify the stockpile.

Dr. PAYNE. I would like to defer to Dr. Foster on all questions regarding recruitment, careers, retirement and expertise at the National laboratories. Dr. Foster has unparalleled experience and knowledge regarding these questions.

CERTIFICATION PROCESS

46. Senator THUNE. Dr. Foster, all nuclear weapons are certified to meet a standard of weapon reliability. According to DOE, this is defined as "the probability of achieving the specified yield, at the target, across the stockpile-to-target sequence of environments, throughout the weapon's lifetime, assuming proper inputs." According to the Government Accountability Office, this is done at our National laboratories using a methodology that combines both the margins and uncertainties and statistical data to predict the reliability of our weapons. Can you describe the challenges and risks associated with the current process to certify the reliability of our nuclear stockpile since we aren't testing anymore?

Dr. FOSTER. Since we aren't performing nuclear testing, we are running risks. Based on our experience and current knowledge we can judge that the stockpile is safe and reliable. But we don't know that it is because we can't prove it through a full-scale integrated test. The best we can do is to follow the methodology referred to by the Government Accountability Office. All of the nuclear laboratories are now using the quantification of margins and uncertainties and that process has led to important research, findings and increased confidence. In the absence of nuclear testing—which demonstrated that nuclear warheads would or would not function properly—the new challenge is to demonstrate the absence of all problems which could cause warheads to not operate properly and why. This is a very difficult challenge.

Two areas, in my view, need more focus and priority. The first is a major effort to use the few remaining leaders who have experienced the design, engineering, production nuclear and flight testing to train those who have not had that experience. The best available opportunity is to accelerate the overdue LEPs. The planned Stockpile Stewardship Program would require, for each LEP, a competitive revalidation process to be used in extending stockpile lives. Additional funds will be needed to permit acceleration of that process.

The second area is to provide more statistical data to provide information on the condition of each warhead type and components in the stockpile as well as those in storage. During the last 5 years reductions in available funding has reduced the number of programmed warhead surveillance operations, reduced the effort on "mandatory" fixes, reduced laboratory experiments and tests, etc. As a result, the laboratory directors lack the statistical information and knowledge they planned to have in order to assess the reliability and safety of the stockpile

The 2011–2016 FYDP will help to reverse recent trends, but there is serious concern that more funds are necessary.

47. Senator THUNE. Dr. Foster, how will the risk levels or the process change with reduced overall numbers of weapons, the emphasis on used or refurbished parts and the increasingly distant amount of time since our last test?

Dr. FOSTER. We know that without nuclear testing we are already running some risks. For more than 50 years the Stockpile Surveillance Program has found potential failure modes, more than 90 percent were due to non-nuclear components, and mandatory fixes were performed. But during the last 5 years of reduced funding the warhead surveillance program has been curtailed as have other parts of the Stockpile Surveillance Program which has increased the risks. When we had thousands of nuclear warheads and tens of different types, such risks may have been judged acceptable but as the number of deployed warheads and types are reduced, the risks grow. For that reason, it is very important to adequately fund warhead inspections and laboratory testing of component development and production articles.

The use of used and refurbished non-nuclear parts is acceptable provided we have performed statistically significant tests-to-failure determined quantitative margins of uncertainty and have a more rigorous inspection process. If we do not have enough used parts for adequate tests, the additional risks may not be acceptable.

The risks associated with increasingly distant time since the last warhead test of each type is a complex matter. But, in my view, the dominante factor is the dedication and training of the scientists, engineers and production personnel to develop competence and proficiency in maintaining the nuclear stockpile. Recent studies have found that the situation must be improved, and it can be.

48. Senator THUNE. Dr. Foster, does using refurbished or reusable parts affect, in any way, your calculations on reliability of the warhead and service life estimates?

Dr. FOSTER. The use of refurbished or reuseable nuclear parts could change estimates of the reliability and service life. The option to use nuclear components from other warheads of the same type after careful inspection is, to me, acceptable. The option to use a nuclear component or assembly based on previously tested designs but not stockpiled has not yet been subjected to a competitive review by the nuclear design labs. If, after a competitive laboratory review of all options the nuclear replacement option were chosen, I feel that on technical grounds that option should be accepted.

49. Senator THUNE. Dr. Foster, wouldn't there be increased risk in their reliability if using used parts?

Dr. FOSTER. Because there could be increased risks in using used nuclear parts, the laboratories make every effort to understand and minimize those risks. Of course, it is the risks that they don't know about, if any, that are not addressed and are always a lingering concern. The best we can do is to incentivize competitive teams to discover such risks and be given the commitment to support efforts to run such discoveries to ground.

[Whereupon, at 11:33 a.m., the committee adjourned.]

CONTINUE TO RECEIVE TESTIMONY ON THE NEW STRATEGIC ARMS REDUCTION TREATY

THURSDAY, JULY 29, 2010

U.S. SENATE,
COMMITTEE ON ARMED SERVICES,
Washington, DC.

The committee met, pursuant to notice, at 9:36 a.m. in room SD–G50, Dirksen Senate Office Building, Senator Carl Levin (chairman) presiding.

Committee members present: Senators Levin, Lieberman, Reed, Udall, Hagan, Bingaman, McCain, Inhofe, Sessions, Chambliss, and Thune.

Committee staff members present: Richard D. DeBobes, staff director; and Leah C. Brewer, nominations and hearings clerk.

Majority staff members present: Madelyn R. Creedon, counsel; and Richard W. Fieldhouse, professional staff member.

Minority staff members present: Christian D. Brose, professional staff member; Daniel A. Lerner, professional staff member; and David M. Morriss, minority counsel.

Staff assistants present: Paul J. Hubbard, Hannah I. Lloyd, and Brian F. Sebold.

Committee members' assistants present: Christopher Griffin, assistant to Senator Lieberman; Carolyn Chuhta, assistant to Senator Reed; Nick Ikeda, assistant to Senator Akaka; Roger Pena, assistant to Senator Hagan; Jonathan Epstein, assistant to Senator Bingaman; Anthony Lazarski, assistant to Senator Inhofe; Lenwood Landrum and Sandra Luff, assistants to Senator Sessions; Clyde Taylor IV, assistant to Senator Chambliss; and Jason Van Beek, assistant to Senator Thune.

OPENING STATEMENT OF SENATOR CARL LEVIN, CHAIRMAN

Chairman LEVIN. Good morning, everybody.

Today, we are continuing the Armed Services Committee hearings on the New Strategic Arms Reduction Treaty (START). Our witnesses this morning are Rose Gottemoeller, Assistant Secretary of State for Verification, Compliance, and Implementation, and the lead negotiator on the New START treaty, and Dr. Edward Warner, the Secretary of Defense's representative to the New START treaty talks.

We will also, as I mentioned at our hearing on Tuesday, be having a classified briefing on the U.S. strategic force structure options today at 3 p.m.

Ms. Gottemoeller, it is a pleasure to have you back before the committee. Several times over the course of the negotiations on the

New START treaty, you provided the committee and other Senators with detailed progress reports on the negotiations. Those were very helpful. We thank you for doing those.

Dr. Warner, it is good to see you again as well. I note that you often accompanied Ms. Gottemoeller when she gave us those progress reports, and we are grateful to both of you for your service in this very demanding work that you were engaged in and are engaged in.

The committee has now heard from witnesses discussing the scope of the treaty and how it will be implemented, with representatives from the executive branch including Secretary of State Clinton; Secretary of Defense Gates; Secretary of Energy Chu; and Admiral Mullen, Chairman of the Joint Chiefs. We have also heard from a panel of independent analysts who shared their views and opinions on the New START treaty.

As a result of these discussions, I think there are a number of areas of interest or concern that have been identified, and among them are the following: whether the treaty has any negative effect on missile defense programs, the adequacy of telemetry and verification, adequacy of onsite inspections, what would make it more likely that we could get Russia to begin negotiations on tactical nuclear weapons—ratification or rejection of the treaty; what would be more helpful in terms of getting Russia, again, to do something that I guess many administrations have supported, which is an agreement on tactical nuclear weapons?

Another issue which has been raised is the question of possible cheating. In that question, the subquestions, what is the ability to detect possible cheating, its effect if it occurs, and what remedies are there if it takes place? Those are issues which we have explored with other witnesses, but these witnesses may have some thoughts on that.

Also, the adequacy of modernization of the nuclear complex and the force structure, which, again, are issues which have been raised, and perhaps these witnesses are not the right witnesses for those issues, but we have raised those with a number of our other panelists.

Ms. Gottemoeller and Dr. Warner, we look forward to a good discussion. I turn this over to Senator McCain.

STATEMENT OF SENATOR JOHN MCCAIN

Senator MCCAIN. Thank you, Mr. Chairman.

I thank our witnesses for their service and for joining us today.

We have with us today, as the chairman said, the leaders of our negotiating team for the New START treaty. We thank them for the many hours they spent in negotiating this treaty with the Russian government.

Thus far, this committee has received testimony from many administration officials and, most recently, from a panel of outside experts. Nonetheless, some serious questions still remain about this treaty, specifically on the New START treaty's methods of verification, its potential constraints on our ballistic missile defense, and the accompanying plan for modernization of both the nuclear stockpile and our nuclear delivery vehicles.

I believe that before this committee will be in a position to provide its views, a number of significant issues require clarification from the administration. Aside from the hundreds of questions for the record that remain unanswered, we have yet to receive critical documents necessary for this committee and the full Senate to make an informed judgment of this treaty.

Today is an important opportunity to discuss these concerns directly with the men and women who negotiated this treaty with Russian officials. It is an opportunity to try to learn why the administration chose to limit this treaty only to strategic nuclear arms reductions, despite the fact that Russia's tactical nuclear weapons outnumber the U.S. arsenal by a factor of 10 to 1 and despite the fact that there was no binding requirement to limit the negotiations to strategic weapons after the administration chose not to renew the original START treaty.

Did we receive any benefits from the Russians in return for this U.S. concession, or any assurances that Russia will commit to reduce its tactical nuclear arms in future?

This hearing is also an opportunity to try to learn why our negotiators agreed to a significantly weaker verification regime than that of the original START treaty it is to replace. So weak, in fact, that the potential for cheating is significant, though the Department of State (DOS) has tried to downplay this fact, stating in a recent report that Russian cheating would have little effect on the assured second-strike capabilities of U.S. strategic forces. If that is true, it seems to call into question the utility of the treaty itself and the ability to make serious nuclear arms reductions.

Finally, this hearing is a chance to hear our negotiators' explanation for New START's puzzling and troubling references to missile defense. We originally were told that there would be no references to missile defense in the treaty and no linkage drawn between offensive and defensive weapons. Then we were told there would be such a reference, but only in the preamble, which, of course, is not legally binding.

However, in the final treaty text—not just in the preamble, but Article V of the treaty itself—there is a clear, legally binding limitation on our missile defense options. While this limitation may not be a meaningful one, it is a limitation.

We must ask why did the administration agree to this language after saying they would do no such thing? Why hand the Russian Government the opportunity they so desire to draw unfounded linkages between offensive and defensive weapons, as Russian Foreign Minister Sergey Lavrov has done, saying the "linkage to missile defense is clearly spelled out in the accord and is legally binding."

We look forward to gaining greater clarity on all of these questions, and others, directly from our negotiators. Still, many of us feel strongly that Congress should be able to complement discussions like this today with our own review of the facts. That is why we are insisting on an opportunity to review the negotiating record for ourselves, specifically, those parts dealing with the ambiguous references to missile defense and the contradictory unilateral statements issued by the United States and Russia on the meaning and legal force of that language.

As I have noted before, this request is not unprecedented. The Senate has previously sought and received access to the negotiating history for arms control treaties between the United States and the Soviet Union, such as the 1972 Anti-Ballistic Missile (ABM) Treaty and the 1987 Intermediate-Range Nuclear Forces (INF) Treaty. This information and the further insights we hope to gain today are critical as the Senate moves to consider and vote on the ratification of this treaty.

I thank each of the witnesses again for your service and for appearing here today.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator McCain.

Secretary Gottemoeller?

STATEMENT OF HON. ROSE E. GOTTEMOELLER, ASSISTANT SECRETARY, BUREAU OF VERIFICATION, COMPLIANCE, AND IMPLEMENTATION, DEPARTMENT OF STATE

Ms. GOTTEMOELLER. Thank you very much, Chairman Levin, Senator McCain, and members of this committee.

I am honored to be here today to provide you my perspective as the chief negotiator of the New START treaty. I am also pleased to be joined by my colleague, Dr. Ted Warner, who served on the delegation as Secretary Gates's representative and as one of my deputies. We share a strong belief that the New START treaty will make our country more secure, and we urge the Senate to provide its advice and consent to ratification.

At the conclusion of my remarks, I will be pleased to respond to your questions. Many questions already are on the table, thanks to the opening remarks, Mr. Chairman and Mr. McCain. But with your permission, I would like to present an abbreviated version of my remarks this morning and submit my full statement for the record.

Chairman LEVIN. It will be made part of the record.

Ms. GOTTEMOELLER. Thank you, sir.

Chairman LEVIN. Thank you.

Ms. GOTTEMOELLER. A little over a year ago, the administration set out to negotiate the New START treaty, with the goal of replacing the expiring START treaty with a new agreement for each party to reduce and limit its strategic offensive arms. I want to underscore that the focus of these negotiations from the beginning to the end was on strategic offensive arms.

The New START treaty will enhance U.S. national security by stabilizing the strategic balance between the U.S. and the Russian Federation at lower levels of nuclear forces. The New START treaty preserves the United States' right to determine our own force structure, giving us the flexibility to deploy and maintain our strategic nuclear forces in a way that best serves U.S. national security interests.

As long as nuclear weapons exist, the United States will maintain a safe, secure, and effective arsenal to deter any adversary and protect our allies. To those who may have concerns regarding alleged backroom deals during the treaty negotiations, let me state unequivocally today on the record before this committee, as I have stated before the Senate Foreign Relations Committee, that there

were no—and I repeat—no secret deals made in connection with the New START treaty, not on missile defense nor on any other issue.

Regarding the recently released 2010 Compliance Report, I want to point out that Russia was in compliance with START's central limits during the treaty's life span. Moreover, the majority of compliance issues raised under START were satisfactorily resolved. Most reflected differing interpretations on how to implement START's complex inspection and verification regime.

Let me speak briefly about verification of the treaty. Verification and the DOS's recent verifiability assessment addressed the large questions related to whether the United States could detect, in a timely manner, if Russia were preparing to move beyond the limits of the treaty or were cheating in a significant way on the treaty well before such an attempt became a threat to U.S. national security.

In addition, the verification regime should and will enable the United States to detect other activities inconsistent with the treaty that, while they may not present an immediate risk to U.S. national security, could, if they went undetected, lead to a situation in which the U.S. national security would be at risk.

Last week, the Commander of U.S. Strategic Command (STRATCOM), General Chilton, testified before this committee that he agreed with this assessment, stating that the "New START treaty retains sufficient flexibility in managing our deterrent forces to hedge against technical or geopolitical surprise." Dr. Miller, the former Principal Deputy Under Secretary of Defense for Policy, who also testified last week, agreed, adding that, under New START, the United States is "postured well to first deter cheating, but then to minimize the significance should it occur."

These assessments are based on the ability under the New START treaty of the United States to retain a diverse triad of strategic forces and, in particular, the fact that the survivability and response capabilities of strategic submarines and heavy bombers would be unaffected even by large-scale cheating.

I want to emphasize as a comment at this moment that in the Nuclear Posture Review (NPR) and in our nuclear policy overall, the maintenance of a diverse triad, a diverse and resilient triad, is important. We really emphasize the necessity of both prompt capabilities as well as second-strike or response capabilities.

The obligations and prohibitions of the New START treaty are different from those in START, reflecting lessons learned from 15 years of implementing the START treaty. The differences also reflect the spirit of the Moscow Treaty by permitting each party the flexibility to determine for itself the configuration of its strategic forces at reduced levels of delivery vehicles and deployed warheads as established in this treaty.

Like START, the New START treaty contains extensive verification provisions that promote strategic stability by ensuring transparency and predictability—I want to reemphasize the word "predictability"—regarding U.S. and Russian strategic forces and confidence that the Russian Federation does not exceed the treaty's limits throughout its 10-year term.

During the negotiation of the New START treaty, negotiators on both sides drew on the lessons learned from START implementation. Both sides benefited from having experienced START treaty inspectors and also the operators of our strategic weapons systems serving on their respective delegations.

We learned much during the 15 years in which the START treaty verification regime was implemented, and the United States and Russia sought to take advantage of that knowledge in formulating the verification regime for the new treaty, seeking to maintain elements which proved useful, to include new measures where necessary, improve on measures that had been an unnecessary drag on our strategic force operations, and eliminating those that were not essential for verifying the obligations of the New START treaty.

Mr. Chairman, as Secretary Clinton stated in her testimony to the Senate Foreign Relations Committee and in a similar statement made to this committee, "The choice before us is between this treaty and no treaty governing our nuclear security relationship with Russia, between this treaty and no agreed verification mechanism on Russia's strategic nuclear forces."

Mr. Chairman, in sum, I believe that the New START treaty is in the national security interests of the United States, is the right treaty for today and the coming years, and will restore the transparency and predictability that START provided while it was in force. The combination of improved U.S. understanding of Russian strategic forces resulting from the implementation of the START treaty over the past 15 years, U.S. National Technical Means (NTM) of verification, the New START treaty's verification provisions, and a favorable posture deterring cheating or breakout, results in a New START treaty that is effectively verifiable.

Thank you, and I will be happy to respond to your questions.

[The prepared statement of Ms. Gottemoeller follows:]

PREPARED STATEMENT BY HON. ROSE GOTTEMOELLER

Chairman Levin, Senator McCain, and members of the committee, I want to thank you for this opportunity to appear before you. I am honored to be here to provide my perspective as chief negotiator of the treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms, also known as the New START treaty. I'm also pleased to be joined by Dr. Ted Warner, who served on the delegation as Secretary Gates' representative and as one of my deputies. We share a strong belief that the New START treaty will make our country more secure, and we urge the Senate to provide its advice and consent to ratification. At the conclusion of my remarks, I will be pleased to respond to your questions.

I believe there is every reason for the Senate to provide its advice and consent to ratification of the New START treaty. The treaty is a continuation of the international arms control and nonproliferation framework that the United States has worked hard to foster and strengthen for the last 50 years. It will provide ongoing transparency and predictability regarding the world's two largest nuclear arsenals, while preserving our ability to maintain the strong nuclear deterrent. Indeed, this treaty imposes no constraint on U.S. efforts to modernize its nuclear enterprise or develop and deploy the most effective missile defenses possible to protect U.S. national security and the security of our allies and friends.

A little over a year ago, the administration set out to negotiate the New START treaty with the goal of replacing the expiring START treaty with a new agreement for each Party to reduce and limit its strategic offensive arms. I want to underscore that the focus of these negotiations from beginning to end was strategic offensive arms. We were also determined to move beyond Cold War mentalities and chart a fresh beginning in our relations with Russia. The 2010 Nuclear Posture Review concluded that the United States could sustain a stable deterrent with significantly

fewer deployed warheads and strategic delivery vehicles than permitted under earlier arms control agreements. It further recognized that we need to cooperate with Russia as our partner to meet these threats and other global challenges.

The New START treaty represents a significant step forward in building a stable, cooperative relationship with Russia. But this treaty is not just about Washington and Moscow. It advances the security of the entire world. By demonstrating that we are living up to our obligations under Article VI of the Nuclear Nonproliferation Treaty (NPT), we enhance our credibility to convince other governments to help strengthen the international nonproliferation regime and confront proliferators.

The New START treaty will enhance U.S. national security by stabilizing the strategic balance between the United States and the Russian Federation at lower levels of nuclear forces. The New START treaty preserves the United States' right to determine our own force structure, giving us the flexibility to deploy and maintain our strategic nuclear forces in a way that best serves U.S. national security interests. As long as nuclear weapons exist, the United States will maintain a safe, secure, and effective arsenal to deter any adversary and protect our allies.

To those who may have concerns regarding alleged backroom deals during the treaty negotiations, let me state unequivocally today on the record before this committee, as I have done previously before the Foreign Relations Committee, that there were no/no secret deals made in connection with the New START treaty; not on missile defense or any other issue. Everything we agreed to is in the treaty documents transmitted to the Senate on May 13. I also want to make clear that Article XV of the treaty authorizes the Bilateral Consultative Commission to make changes in the Protocol without resorting to the treaty amendment procedures only where such changes do not affect substantive rights or obligations under the treaty. A similar provision was contained in, and successfully implemented under, the START treaty.

Regarding the recently released 2010 Compliance Report, I want to point out that Russia was in compliance with START's central limits during the treaty's life span. Moreover, the majority of compliance issues raised under START were satisfactorily resolved. Most reflected differing interpretations on how to implement START's complex inspection and verification provisions.

Let me speak briefly about verification of the treaty. Verification and the State Department's recent verifiability assessment address the larger questions related to whether the United States could detect, in a timely manner, if Russia was preparing to move beyond the limits of the treaty, or were cheating in a significant way on the treaty well before such an attempt became a threat to U.S. national security. In addition, the verification regime will enable the United States to detect other activities inconsistent with the treaty that, while they may not present an immediate risk to U.S. national security, could, if undetected, lead to a situation in which U.S. national security would be at risk. Last week, General Chilton testified before this committee that he agreed with this assessment, stating that the "New START retains sufficient flexibility in managing our deterrent forces to hedge against technical or geopolitical surprise." Dr. Miller also agreed, adding that, under New START, the United States is "postured well to first deter cheating, but then to minimize the significance should it occur." These assessments are based on the ability under the New START treaty of the United States to retain a diverse triad of strategic forces, and in particular the fact that the survivability and response capabilities of strategic submarines and heavy bombers would be unaffected even by large-scale cheating.

It is important that the Department of State's verifiability assessment not be confused with Intelligence Community monitoring confidences. The Intelligence Community's monitoring efforts provide evidence, along with other inputs such as legal interpretations, information gathered from other sources, and compliance analysis, which contribute to the verification process.

New START's verification measures are designed to ensure that each Party is able to verify the other's compliance with the central limits in the treaty, including:

- No more than 700 deployed intercontinental ballistic missiles (ICBMs), deployed submarine launched ballistic missiles (SLBMs), and deployed heavy bombers;
- No more than 1,550 warheads emplaced on deployed ICBMs and deployed SLBMs and counted for deployed heavy bombers; and
- No more than 800 deployed and nondeployed ICBM launchers, deployed and nondeployed SLBM launchers, and deployed and nondeployed heavy bombers.

The obligations and prohibitions of the New START treaty are different from those in START, reflecting lessons learned from 15 years of implementing the

START treaty. The differences also reflect the spirit of the Moscow Treaty, by permitting each Party the flexibility to determine for itself the configuration of its strategic forces at the reduced levels of delivery vehicles and deployed warheads established in this treaty. Like START, the New START treaty contains extensive verification provisions that promotes strategic stability by ensuring transparency and predictability regarding U.S. and Russian strategic nuclear forces and confidence that the Russian Federation does not exceed the treaty's limits throughout its 10-year term.

The START treaty's verification regime was tailored to the specific obligations of the START treaty, while the New START verification provisions are tailored to the specific obligations of the new treaty. The treaty's verification regime was designed to be effective while at the same time reducing the implementation costs and the disruption to operations at U.S. and Russian military facilities subject to the treaty as compared with the original START treaty. The regime is based on an extensive set of data exchanges and timely notifications regarding all strategic offensive arms and facilities covered by the treaty, two types of onsite inspections, exhibitions, locational restrictions, and additional transparency measures, including the use of unique identifiers on each ICBM, SLBM, and heavy bomber. Although telemetry from missile flight tests is not required to verify the provisions of the New START treaty, the treaty includes provisions regarding the exchange of some telemetric information as a means of enhancing transparency and predictability.

Deterrence of cheating is a key part of the assessment of verifiability, and is strongest when the probability of detecting significant violations is high, the benefits to cheating are low, and the potential costs are high. We assess that this is the case for Russia cheating under the New START treaty.

During the negotiation of the New START treaty, negotiators on both sides drew on the lessons learned from START implementation. Both sides benefited from having experienced START treaty inspectors serving on their respective delegations. Much was learned over the 15 years in which the START treaty verification regime was implemented, and the United States and Russia sought to take advantage of that knowledge in formulating the verification regime for the new treaty—seeking to maintain elements which proved useful, to include new measures where necessary, improve those measures that were an unnecessary drag on our strategic forces, and eliminate those that were not essential for verifying the obligations of the New START treaty.

Mr. Chairman, as Secretary Clinton stated in her testimony to the Senate Foreign Relations Committee, and in a similar statement made to this committee: "The choice before us is between this treaty and no treaty governing our nuclear-security relationship with Russia, between this treaty and no agreed verification mechanism on Russia's strategic nuclear forces, between this treaty and no legal obligation for Russia to maintain its strategic nuclear forces below an agreed level. We cannot turn a blind eye to Russian nuclear force developments, which would be a step in the wrong direction from our burgeoning relationship with Russia." Secretary Gates noted that the treaty "has the unanimous support of America's military leadership;" Admiral Mullen said that the "conclusion and implementation of the New START treaty is the right thing for us to do;" General Chilton reminded us that, "Without New START, we would rapidly lose some of our insight into Russian strategic nuclear force developments and activities, and our force modernization planning and hedging strategy would be more complex and more costly" and Secretary Chu testified that "the New START treaty will serve the interests of the United States without jeopardizing our ability to sustain the safety, security and effectiveness of the U.S. nuclear weapons stockpile." The entire administration is united behind this treaty.

Mr. Chairman, in sum, I believe that the New START treaty is in the national security interests of the United States, is the right treaty for today and the coming years, and will restore the transparency and predictability that START provided while it was in force. The combination of improved U.S. understanding of Russian strategic forces resulting from the implementation of the START treaty, U.S. NTM capabilities, the New START treaty's verification provisions, and a favorable posture deterring cheating or breakout, results in a New START treaty that is effectively verifiable.

Thank you and I will be happy to respond to any questions.

Chairman LEVIN. Thank you, Secretary Gottemoeller.

Dr. Warner?

STATEMENT OF HON. EDWARD L. WARNER III, PH.D., SECRETARY OF DEFENSE REPRESENTATIVE TO POST-START NEGOTIATIONS, DEPARTMENT OF DEFENSE

Dr. WARNER. Thank you, Mr. Chairman, Senator McCain, other members of the committee.

It, too, is an honor for me and a privilege to have an opportunity to speak with you today about the New START treaty.

I served as a representative of the Secretary of Defense on the treaty negotiating team and was involved in the effort from the beginning, April 2009, through the signing of the treaty almost a year later. The leadership of the Department of Defense (DOD) stands firmly behind the treaty. It will strengthen strategic stability, enable the United States to modernize its triad of strategic delivery vehicles, and protect our flexibility to deploy effective missile defenses and conventional prompt global strike capabilities.

I would like today to focus my remarks on the national defense-related aspects of the treaty and on the inspections framework for the treaty, which I was responsible for negotiating on the U.S. side. Regarding the national defense aspects of the treaty, I would like to make four points.

First, the United States sought to conclude a treaty that would limit U.S. and Russian strategic offensive arms while preserving strategic stability in a manner that provides predictability and transparency and is supported by an effective verification system.

While pursuing stabilizing reductions in strategic or offensive forces, we protected our ability to field a flexible, effective strategic triad and enabled modernization of our strategic delivery systems and the nuclear weapons and the nuclear weapons complex that supports them. We agreed to ceilings on strategic warheads that were lower than those in the Moscow Treaty, but sufficient to meet the needs of the Nation as established by the NPR.

Second, the administration plans to maintain all three legs of the triad and to field strategic nuclear forces within the central limits of the treaty that will include up to 420 deployed Minuteman III intercontinental ballistic missiles (ICBMs) with a single warhead; 240 deployed Trident II D–5 submarine launched ballistic missiles (SLBMs) on the 12 operational, a total of 14 *Ohio*-class submarines; and up to 60 deployed B–2A and B–52H heavy bombers equipped for nuclear armaments.

Over the next decade, DOD plans to invest over $100 billion in sustaining and modernizing our strategic nuclear delivery systems, and the Department of Energy (DOE) plans to invest $80 billion in sustaining and modernizing the nuclear weapons stockpile and the nuclear weapons complex.

Third, we protected our ability to develop and deploy the most effective missile defenses possible. Under the treaty, the United States is free to pursue its current and planned ballistic missile defense programs, as well as any other courses of action we might choose to pursue.

The one limitation within the treaty on missile defense is the ban on conversion of ICBM or SLBM launchers for the use as missile defense interceptor launchers, or vice versa. As previously discussed by Dr. Miller when he appeared before you last week, such a conversion does not make sense on strategic or cost grounds.

Fourth, we protected the U.S. ability to develop and deploy conventional prompt global strike systems, agreeing to a so-called "permit and count" regime whereby conventionally armed ICBMs or SLBMs would be permitted but counted against the strategic delivery vehicle and strategic warhead ceilings.

Turning to issues of verification, achieving an effective verification framework was another key U.S. and DOD objective in the negotiations. As the U.S. Chairman of the Inspections Working Group during the negotiation of the treaty, I met more than 90 times with my Russian counterpart to hammer out an effective tailored inspections framework for the treaty. In this effort, I was aided by a cadre of veteran START inspectors who brought many years of combined experience to the negotiating table.

We crafted an inspections framework that continues the appropriate verification and transparency functions provided for under START, while streamlining the overall process and reducing unnecessary burdens. The treaty provides that each party may conduct up to 18 short-notice, onsite inspections each year.

These inspections are divided into two groups. Type I inspections will be conducted at the operating bases for ICBMs, SLBMs, and nuclear-capable heavy bombers and will include inspections of both deployed and nondeployed systems. Type II inspections are focused on nondeployed strategic systems, as well as formerly declared facilities, and confirming the results of the elimination or conversion of strategic offensive systems. These inspections will be conducted at places such as storage sites, test ranges, formerly declared facilities, and conversion or elimination facilities.

Each side is allowed to conduct up to 10 Type I inspections and up to 8 Type II inspections annually. Type I inspections combine many of the aspects associated with two different types of inspections—the reentry vehicle onsite inspection and the data update inspection—that were conducted separately under START, thus requiring fewer inspections annually at operating bases while achieving many of the results of the previous START inspection regime with a smaller number of annual inspections. That means less disruption to our operating forces on an annual basis.

These inspection activities contribute to the verification of the treaty's provisions by confirming that the declared data is accurate, that weapon systems have been converted or eliminated, and that formerly declared facilities are not used for purposes inconsistent with the treaty.

Inspections will also help deter cheating. Since the 18 short-notice, onsite inspections each year will be conducted at sites selected by the inspecting party, each side knows that the other will have a significant capability to uncover any discrepancies between what is reported and what is actually happening.

If the United States encounters ambiguities or evidence of what appears to be cheating, we will immediately raise these matters in the Bilateral Consultative Commission, the body set up to oversee implementation of the New START treaty. Or, if necessary, we will raise them at higher political levels, seeking prompt resolution.

The use of unique identifiers on each ICBM, SLBM, and heavy bomber, timely notifications each time a treaty-accountable system changes status, the regularly updated comprehensive database that

provides information on all treaty-accountable systems and facilities, and the use of NTM of verification will all complement inspections in providing for a robust treaty verification regime.

In summary, the New START treaty will promote stability, transparency, and predictability in the U.S.-Russian strategic relationship and is effectively verifiable. It will allow us to field a strong triad of strategic delivery systems and, if desired, to deploy conventional prompt global strike capabilities.

It will not affect our ability to improve our missile defenses qualitatively and quantitatively to defend the Homeland against limited missile attacks and to protect our deployed forces, allies, and partners from growing regional missile threats.

Thank you for the opportunity to discuss this matter with you today. I very much look forward to your questions.

[The prepared statement of Dr. Warner follows:]

PREPARED STATEMENT BY DR. EDWARD L. WARNER III

Chairman Levin, Senator McCain, distinguished members of the committee:

Thank you for the opportunity to speak today regarding the New Strategic Arms Reduction Treaty (START). I served as the Representative of the Secretary of Defense on the New START treaty negotiating team and was involved in the effort from the beginning of our discussions with the Russians in late April 2009 through to the signing of the treaty almost a year later.

The leadership of the Department of Defense (DOD) stands firmly behind this treaty. The agreement will strengthen strategic stability, enable the United States to modernize its Triad of strategic delivery systems, and protect our flexibility to develop and deploy effective missile defenses and conventional prompt global strike capabilities. Because of this, the treaty has the support of the U.S. defense leadership—including the Secretary of Defense, the Chairman of the Joint Chiefs of Staff, the Service Chiefs, and the Commander of the U.S. Strategic Command, the command responsible for the U.S. strategic nuclear deterrent.

In light of my role in the negotiation of New START treaty, I would like to focus my remarks today on the national defense-related aspects of the agreement and on the inspections framework for the treaty, which I was responsible for negotiating on the U.S. side.

As the Representative of the Secretary of Defense for the talks, I had a particular responsibility to ensure that the national defense interests of the United States, as viewed by the leadership in DOD, were properly incorporated into our negotiating positions and in any provisions that were agreed for inclusion in the treaty and its supporting documents. I am confident that we did so. Throughout the negotiations, my colleague representing the Joint Staff and I were in close contact with DOD leadership, and we did not agree to the inclusion of any provisions without securing their approval. Indeed, the final treaty, Protocol, and supporting annexes very much reflect the input of senior DOD leaders to an effective government-wide process, including the personal involvement of the Secretary of Defense and Admiral Mullen, the Chairman of the Joint Chiefs of Staff, at key junctures in the negotiation of the treaty.

Let me address some of the key national defense-related issues in the treaty and how the U.S. side handled them.

First, the United States sought to conclude a treaty that would limit U.S. and Russian strategic offensive arms while preserving strategic stability in a manner that provides predictability and is supported by an effective verification system.

While pursuing stabilizing reductions in strategic offensive forces, the U.S. negotiators sought to protect our ability to field a flexible, effective strategic Triad composed of intercontinental ballistic missiles (ICBMs), submarine launched ballistic missiles (SLBMs), and nuclear-capable heavy bombers, and to enable modernization of our strategic delivery systems and the nuclear weapons they carry. The U.S. negotiators also sought agreement on ceilings on strategic warheads that were lower than those in the Moscow Treaty, but sufficient to meet the needs of the Nation as established by the Nuclear Posture Review.

We achieved these objectives. The New START treaty will entail stabilizing limits on deployed strategic nuclear forces and nondeployed ICBM launchers, SLBM launchers, and heavy bombers, as well as associated verification measures. We

agreed to these limits based on analysis conducted in the Nuclear Posture Review prior to and during the course of the negotiations, which determined that the ceilings would be sufficient to allow us to meet U.S. strategic deterrence requirements and to maintain the Triad of delivery systems. The agreement of the DOD leadership to the limits was also conditional upon Russian agreement to allow removal of converted B–1Bs, cruise missile submarines (SSGNs), and any future conventional-only B–52Hs from accountability under the New START treaty. We achieved agreement on these points as well.

Second, the treaty affords us the freedom to deploy, maintain, and modernize our forces as we determine appropriate in a manner consistent with the central limits of the treaty. As outlined in the report to Congress issued in compliance with Section 1251 of the National Defense Authorization Act, 2010, the administration plans to maintain and modernize all three legs of the Triad. By the time that the treaty reductions go into effect, 7 years after entry into force, the Department intends to field strategic nuclear forces within the central limits of the treaty that include: up to 420 deployed Minuteman III ICBMs; 240 deployed Trident II D5 SLBMs; and up to 60 deployed B–2A and B–52H heavy bombers equipped for nuclear armaments. Over the next decade, DOD plans to invest over $100 billion in sustaining and modernizing our strategic nuclear delivery systems, and the Department of Energy plans to invest $80 billion in sustaining and modernizing the nuclear weapons stockpile and the nuclear weapons complex.

Third, protecting our ability to develop and deploy the most effective missile defenses possible was one of the most important U.S. objectives during the treaty negotiations, and we clearly did so. Under the treaty, the United States is free to pursue its current and planned ballistic missile defense programs, as well as any other courses of action we might choose to pursue. The one limitation is the ban on conversion of ICBM or SLBM launchers for use as missile defense interceptor launchers, or vice versa. As previously explained, such a conversion does not make sense on strategic or cost grounds, and is not part of our plans for future missile defense programs. Nothing in this treaty or in the Russian unilateral statement concerning U.S. missile defenses, which is not a part of the treaty and not legally binding, will constrain us from developing and deploying the most effective missile defenses possible, nor will the treaty impose additional costs or burdens on these efforts.

Fourth, the administration was also intent on protecting the U.S. ability to develop and deploy conventional prompt global strike systems. We therefore agreed to a "permit and count" regime whereby conventionally-armed ICBMs or SLBMs would be permitted but counted against the strategic delivery vehicle and strategic warhead ceilings. In addition, the United States stated during the negotiations that it would not consider future, strategic range non-nuclear systems that do not meet the definitions of this treaty to be "new kinds of strategic offensive arms" for purposes of the treaty. We are confident that this arrangement accommodates our defense requirements regarding the possible development and deployment of conventional prompt global strike capabilities for the lifetime of the treaty.

Achieving an effective verification framework was another key U.S. and DOD objective in the negotiations. Let me therefore turn now to my role as the U.S. Chairman of the Inspections Working Group during the negotiation of the treaty. In this capacity, I led the U.S. side in negotiating the inspections framework that will form a central pillar of the treaty's verification regime. During the course of the negotiations, we met more than 90 times with our Russian counterparts to hammer out an effective, tailored inspections framework for the treaty. In this effort, I was aided by a cadre of veteran inspectors who brought many years of combined experience in implementing inspections under the START and Intermediate-Range Nuclear Forces Treaties to the development of our negotiating positions and to the negotiating table.

The inspections framework that we negotiated with Russia is an essential part of the treaty's overall verification regime. Our objectives were to craft an inspection framework that continues the appropriate verification and transparency functions provided for under START, while streamlining the overall process and reducing unnecessary burdens, in line with the July 2009 Joint Understanding signed by Presidents Obama and Medvedev. We achieved these objectives.

The treaty provides that each Party may conduct up to 18 short-notice, onsite inspections each year. These inspections are divided into two groups. Type One inspections will be conducted at the operating bases for ICBMs, SLBMs, and nuclear-capable heavy bombers and will include inspections of both deployed and nondeployed systems. Type Two inspections are focused on nondeployed strategic systems, as well as formerly declared facilities, and confirming the results of the elimination or conversion of strategic offensive systems. These inspections will be conducted at places such as storage sites, test ranges, formerly declared facilities, and conversion

or elimination facilities. Each side is allowed to conduct up to 10 Type One inspections and up to eight Type Two inspections annually. Type One inspections combine many of the aspects associated with two different types of inspections that were conducted separately under START, thus requiring fewer inspections annually at the operating bases while achieving many of the results of the previous START inspection regime with a smaller number of annual inspections.

These inspection activities contribute to the verification of the treaty's provisions by confirming: the accuracy of declared data on the numbers of deployed and nondeployed ICBMs, SLBMs, and nuclear-capable heavy bombers and of the warheads located on or counted for them; that weapon systems have been converted or eliminated; and that formerly declared facilities are not being used for purposes inconsistent with the treaty.

Inspections will also help deter cheating. Since the 18 short notice, onsite inspections each year will be conducted at sites selected by the inspecting party, each side knows the other will have a significant capability to uncover discrepancies between what is reported and what is actually happening. If the United States encounters ambiguities or evidence of what appears to be cheating, we will immediately raise the matters in the Bilateral Consultative Commission or, if necessary, at higher political levels, seeking prompt resolution. The use of unique identifiers on each ICBM, SLBM, and heavy bomber, timely notifications each time a treaty accountable system changes status, the regularly updated comprehensive database, and the use of national technical means will complement inspections in providing for a robust treaty verification regime.

In conclusion, the New START treaty will promote stability, transparency, and predictability in the U.S.-Russian strategic relationship and is effectively verifiable. It will allow us to field a strong Triad of strategic delivery systems, and, if desired, to deploy conventional prompt global strike systems. It will not affect our ability to improve our missile defenses qualitatively and quantitatively to defend the homeland against limited missile attacks and to protect our deployed forces, allies, and partners from growing regional missile threats.

Thank you for the opportunity to testify on New START. I would be happy to answer any questions.

Chairman LEVIN. Thank you, Dr. Warner.

Let us have a 7-minute first round, if that is all right? Let me start with you, Secretary Gottemoeller. Some critics have asserted that the START I treaty should have been extended in lieu of a new treaty. Did the Bush administration desire to extend the START I treaty before it expired, or did they prefer to begin negotiations on a new treaty?

Ms. GOTTEMOELLER. Sir, it is my understanding that during the Bush administration, President Bush and then-President Putin agreed at the Sochi summit in April 2008 that they would proceed with negotiating a new legally binding treaty. It was my understanding that we had already mutually informed each other that we would not be extending the START treaty before the end of 2008.

Chairman LEVIN. Thank you.

DOS recently completed and provided to Congress a report on treaty compliance since 2005. Now, the unclassified version of the report says that with respect to Russia and the START I treaty, that "notwithstanding the overall success of START implementation, a number of longstanding compliance issues remained unresolved when the treaty expired on December 5, 2009."

Now, was it DOS's determination that Russia or the Soviet Union—I guess Russia at that point—was not in compliance, or is it the statement of DOS that the issues were just unresolved?

Ms. GOTTEMOELLER. Sir, that is a very important question. In fact, the view of DOS and its report in the compliance report is that all the signatories to the START treaty, including not only Russia, but also Ukraine, Kazakhstan, and Belarus, in addition to

the United States, were in compliance with the central limits of the START treaty. The START treaty was well implemented, and its implementation was a success is our view.

Compliance issues did arise in the implementation of the START treaty over its 15-year history. It was a very complicated treaty, 700 pages in length. For that reason, there were differences in interpretation at times, questions that needed to be resolved. That is why we used the Joint Compliance and Inspection Commission to resolve very many compliance issues.

At the time START went out of force, not all of those questions had a chance to be resolved. It is my understanding that most of them were minor technical issues.

Chairman LEVIN. Then is it more accurate to say that the issues were unresolved or that there was noncompliance? Had we determined noncompliance, or did this report find otherwise?

Ms. GOTTEMOELLER. No, sir. The issues were simply not resolved.

Chairman LEVIN. All right. On the Biological Weapons Convention (BWC), is it the conclusion that Russia is not in compliance with obligations, or as the unclassified DOS compliance report indicates, is it a matter that "remains unclear?"

Ms. GOTTEMOELLER. Sir, it is a matter that remains unclear. I will note that the compliance report, when it focuses on the period since the demise of the Soviet Union, takes note of the fact that with regard to both the BWC and the Chemical Weapons Convention (CWC), the Russian Federation has been working very closely with the international bodies that are responsible for those conventions, and its activities at this time appear to be in compliance with those obligations.

The concerns that have arisen are related to the past. They are related to the Soviet period. President Yeltsin made some statements in 1992 about the Russian compliance or, rather, the existence of a Russian offensive BW program. There was a statement made at the time that some information would be provided about that program. That information has never been received. It is a question about past activities, dating from the Soviet era that is of concern with regard to the BWC.

Chairman LEVIN. Were DOD, the Intelligence Community (IC), and DOE fully involved in treaty negotiations, and did they concur in the outcome?

Ms. GOTTEMOELLER. Absolutely, sir. From beginning to end, this was a thorough-going interagency process. We had an excellent interagency team in Geneva working on the negotiations, and the backstopping team, back here in Washington, was entirely interagency in its character. I will say also that we received enormous support from agency principals, as well as from the President himself.

Chairman LEVIN. Do they concur in the outcome and support the treaty?

Ms. GOTTEMOELLER. Yes. Absolutely, sir.

Chairman LEVIN. Does the IC assess that Russia is likely to comply with its obligations under the New START treaty?

Ms. GOTTEMOELLER. Yes, sir.

Chairman LEVIN. On this issue of silo conversion, there has been a number of comments about the fact that there is in Article V,

Paragraph 3 of the treaty a prohibition on the conversion of ICBM silos and SLBM launchers to be launchers of missile defense interceptors, and vice versa. You made reference to that in your opening statement as well.

You also indicated in your opening statement that from our perspective it makes no sense on a strategic basis, but also on cost grounds, for that conversion to take place. Could I ask you, if conversion were allowed, would that also introduce an element of ambiguity as to whether or not a silo was a silo for offensive or defensive purposes and that that ambiguity, at least as I see it, would be something which would not contribute to security and stability?

Ms. GOTTEMOELLER. Mr. Chairman, I am sure Dr. Warner might like to comment on this.

Chairman LEVIN. Let me ask Dr. Warner then about that.

Dr. WARNER. Yes, sir. Your final point, I think there would be a real strategic stability concern about intermixing ballistic missile defense interceptors and ICBM and active ICBM silos. The issue there isn't so much just a distinguishability. It is that, were there a crisis, were there a missile defense interceptor fired against a, for instance, North Korean or Iranian ICBM fired at the United States, it would come out of this ICBM field and could be misinterpreted by Russia as a launch of an ICBM.

Therefore, it would introduce, and it is a consideration about the colocation of defense interceptors and offensive missiles, a potentially destabilizing event that I think is one of the factors that argues against moving in that direction.

Chairman LEVIN. Just to conclude, the reference in the treaty itself to missile defense is limited to that one reference, and it is a reference that we agreed to?

Dr. WARNER. The two references under the treaty?

Chairman LEVIN. No, I said in the treaty itself. Not the preamble. I will come to that in a minute.

Dr. WARNER. Okay. The preamble is also part of the treaty.

Chairman LEVIN. Okay.

Dr. WARNER. But in the articles of the treaty, the only references to missile defense is Article V, Paragraph 3, which is the provision we just talked about.

Chairman LEVIN. We thought that was in our interest?

Dr. WARNER. We clearly thought that was in our interest.

Chairman LEVIN. There is reference in the preamble, which, as you point out, is part of the treaty?

Dr. WARNER. There is reference in the preamble to the interrelationship between offense and defense.

Chairman LEVIN. A similar relationship reference was made, as I remember, in START I. Is that correct? In the preamble. In terms of ABM, there was a reference to the ABM Treaty.

Ms. GOTTEMOELLER. The reference was to the ABM Treaty in the preamble to START I, but the relationship is very much the same between START I and its unilateral statements and the New START treaty and its unilateral statements.

Mr. Chairman, may I just comment for 1 second?

Chairman LEVIN. Could you make it brief because my time is up?

Ms. GOTTEMOELLER. Paragraph 5, Article III also, in our view, is very much and the focus on it is a conversion issue because the

Russians were very concerned during START about this conversion. They considered it actually a compliance problem on our side.

We wanted to ensure that the missile defense interceptors at Vandenberg Air Force Base that had been converted from silo launchers of ICBMs, that they were absolutely grandfathered under this treaty and that no further compliance questions would arise in the New START treaty.

Chairman LEVIN. Thank you.

Senator McCain.

Senator MCCAIN. Thank you, Mr. Chairman.

I thank the witnesses. Madam Secretary, the media says that there are reports that the U.S. negotiators actually told the Russians that the United States had no intention of putting strategic missile defenses in Europe. In your opening statement, you said that was not correct. Is that true?

Ms. GOTTEMOELLER. Sir, we were very, very strict in our Geneva negotiations to keep separate the matter of strategic defensive forces and strategic offensive forces. We simply did not discuss this matter of missile defenses in Europe.

Senator MCCAIN. So the answer is no?

Ms. GOTTEMOELLER. No.

Senator MCCAIN. Then is it agreeable to you that this committee and the Senate have the ability to carefully review the negotiating record so that the record can be set straight?

Ms. GOTTEMOELLER. Sir, as far as the negotiating record is concerned that there have been some very rare instances in which the parts of the negotiating record have been reviewed from time to time. The point you raised about the ABM Treaty earlier was actually several years after the ABM Treaty was ratified and entered into force.

Some questions were raised concerning the interpretation of the ABM Treaty, and at that time, the Senate, in some limited circumstances, was allowed to look at some of those documents, but it was not part of the ratification process for the ABM Treaty. As far as we can find out, there were no documents shared at the time that the START treaty was ratified.

Now, in the case of the INF Treaty and following on the reinterpretation debate over the ABM Treaty, there were some very limited opportunities presented to review documents. At the time, the Senate Foreign Relations Committee commented in its report out on the INF Treaty about this extraordinarily rare circumstance and also was very firm in underscoring that this should not be a precedent for further treaties coming before the Senate on account of the chilling effect that it would have on U.S. diplomacy. As the chief negotiator of this treaty, I do agree with that point of view.

Senator MCCAIN. So you would object to this committee and members of the Senate from reviewing the full review of the negotiating record.

Now there was an unclassified version of the DOS treaty compliance report that Senator Levin just asked you about, and the unclassified report says that compliance issues from the last START treaty remained unresolved. It also concludes the U.S. Government does not believe Russia is in compliance with the CWC because it has not declared all its stockpiles nor agree it destroyed those it

acknowledged, despite a 1997 plan to do so, and that Russia may not be in compliance with the international convention banning biological weapons.

You just told Senator Levin that that was all prior to the fall of the Soviet Union issues. It certainly can't be, as far as the 1997 plan to do so. There is nowhere in the unclassified version that says that all of this took place before the fall of the Soviet Union. In fact, it said they remain unresolved and they remain not in compliance with the 1997 plan to do so.

It seems to me what you just told Senator Levin is at variance with DOS. One of you has an obviously different interpretation of the facts.

Ms. GOTTEMOELLER. Thank you very much, sir, for bringing up that point. It is a very good one to remind us all of. The Russian Federation has been working hard to destroy its CW stocks.

Senator MCCAIN. I would just ask, do you believe that they are still not in compliance, along with this report or not?

Ms. GOTTEMOELLER. I think, if I may, sir? I think that they have been working very hard to destroy their stock.

Senator MCCAIN. My time is very limited. I would like to have an answer. Do you believe that they are in compliance or not in compliance and unresolved, as the DOS report says?

Ms. GOTTEMOELLER. I am convinced that they are working to resolve compliance, any compliance concerns by trying to reduce their stocks, as required by the convention.

Senator MCCAIN. They are working, in 2010, on complying with treaties that were concluded many, many years ago.

Did the Russians tell you, in the course of the negotiations, that they were going to have a signing statement that basically said that any qualitative or quantitative buildup in the missile defense system capabilities of the United States of America would affect the viability and the Russian commitment to the treaty?

Ms. GOTTEMOELLER. Yes, sir. They told us that.

Senator MCCAIN. They told you that?

Ms. GOTTEMOELLER. Yes,

Senator MCCAIN. What did you say?

Ms. GOTTEMOELLER. This was a unilateral statement of Russian policy, not legally binding on us in any way. We essentially told them that if they were to make a unilateral statement of that kind, we would make our own unilateral statement, stating our own policy views on this question.

Senator MCCAIN. Does cheating matter?

Ms. GOTTEMOELLER. Absolutely, sir.

Senator MCCAIN. Do you agree that any Russian cheating under the treaty would have little effect, if any, on the assured second-strike capabilities of the U.S. strategic forces?

Ms. GOTTEMOELLER. Sir, if the Russians intended to cheat so as to undermine this treaty, it would be an enormously serious matter for the United States of America. It would be taken up in diplomatic channels and, if serious enough, at the highest political level. So cheating is a very serious matter.

Senator MCCAIN. In his statement before the Senate Foreign Relations Committee, Henry Kissinger said:

> "As strategic arsenals are reduced, the distinction between tactical and strategic nuclear weapons is bound to erode. The large Russian stockpile of tactical nuclear weapons, unmatched by a comparable American deployment, could threaten the ability to undertake extended deterrence. This challenge is particularly urgent, given the possible extension of guarantees in response to Iran's nuclear weapons program and other programs that may flow from it."

Do you agree with Dr. Kissinger's assessment?

Ms. GOTTEMOELLER. Yes, sir. I think that it is extremely important to bear in mind that we must also focus on nonstrategic or tactical nuclear weapons.

Senator MCCAIN. In summary, I think most observers agree that the verification requirements of this treaty are less stringent than START I. We now have a report from DOS that the compliance issues from the last START treaty remain unresolved and that the CWC has not been adhered to, and they may not be in compliance with international convention banning biological weapons.

It obviously is a matter of concern to us that the verification procedures for this treaty are less stringent than the ones for the last, which they clearly are not, despite your statements about all of it happening before the fall of the Soviet Union—that is not my interpretation of this report—is a matter of significant concern to this committee.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator McCain.

Senator Reed.

Senator REED. Thank you, Mr. Chairman.

Dr. Warner, then Secretary Gottemoeller, we have had 15 years of experience with the START I Treaty. From that experience, what lessons did we apply in developing the verification regime?

Dr. WARNER. Senator, we used that experience in many ways in developing the regime. One, we screened what kinds of inspections we needed to carry out, and we identified what things we need, how those inspections needed to be carried out, and they informed the manner in which we wrote the protocol and the inspection activities annex.

So, for instance, as I talked of these Type I inspections at operating bases, under START, we had two different types of inspections coming to operating bases that made them doubly vulnerable, and each installation was, for instance, vulnerable up to two times under both types of inspections.

This time, we combined those inspections at operating bases. This is a good example. Therefore, they will be somewhat longer when they come, and they will look at both the deployed and nondeployed elements, including the warhead inspection, the reentry vehicle inspection at an ICBM or SLBM base. But they will at most come twice a year to any one installation.

Senator REED. When you say installation, these are U.S. installations?

Dr. WARNER. Yes. The same rule applies to both. It means when you come to an ICBM base, SLBM base, or heavy bomber base, you have the opportunity to do multiple elements, what were separated

in START. This has been important on the numbers game, if you will, in comparing the two.

Under START, you were allowed to do up to 28 annual inspections of 3 different types. Under the New START, we will be able to do 18. But within those 18, there is this double-duty business at the operating bases. So, the effective number is more like 23 or 24. Then, on top of that, the number of installations to be inspected under START was 70. The number of installations subject to inspection under New START is 35.

We have inspection numbers that are in the 20s in an effective comparison, but half the number of installations. That really means this argument that we have a much weaker inspection regime, I think, is very questionable.

Senator REED. Let me follow up with two questions. One is that not only the lessons learned, but also the individuals who were participating in this negotiation were veterans of 15 years of experience of looking at Soviet and Russian systems and, frankly, being on the other end of having the Russians look at our systems. It is their experience that was significant in your input?

Dr. WARNER. It was absolutely indispensible.

Senator REED. The other aspect here, too, is that some of our concerns are actually protecting our installations and our systems from unwanted intrusion. I think the impression often is that this is simply the interests of the Russians of obscuring what they are doing. It is both sides of the street have the similar interest. Is that correct?

Dr. WARNER. We both have the interest in, on one hand, allowing people to inspect and verify the relevant data, the critical data on numbers of systems, numbers of reentry vehicles mounted, et cetera. On the other hand, we have every interest, as they do, in protecting our national security secrets, if you will.

Senator REED. That interest is held by everyone, but I would think particularly by the uniformed officers in the Air Force and the other strategic systems, who would like to have some of their operations not transparent?

Dr. WARNER. We were in very close consultation. Number one, we had representation on the team of people from the Services, from the Joint Staff, as well as other parts of the interagency. We were in close contact. Any of the key issues that we were negotiating and going toward agreement had to be, in fact, vetted through the so-called backstopping process.

We were very cautious. We had to strike that balance, enough visibility to have good verification, but also protecting U.S. national security.

Senator REED. Secretary Gottemoeller, any comments?

Ms. GOTTEMOELLER. Yes, sir. I did want to underscore that a very important consideration was disruption to the operational tempo (OPTEMPO) of the strategic forces, and it was a consideration for the negotiators, I think, on both sides of the table because we had found in the 15-year implementation of START that quite oftentimes facilities would get closed down by repeated inspection activities. So, OPTEMPO for the strategic forces was an important consideration.

Senator REED. Let me pose a question again to both of you that arises consistently, and that is if the failure to ratify this New START would create a situation in which there are no essential limits that are enforceable. That is somewhat rhetorical. You can correct me.

Also it would tend to, I think, set back any further effective negotiations with the Russians on any other major weapons systems. Is that a fair judgment, or alternatively, how would you describe the situation if the treaty is not ratified? Secretary Gottemoeller?

Ms. GOTTEMOELLER. Yes, Senator. The Moscow Treaty does remain in force at this time, with its limits on 1,700 to 2,200 warheads. A very interesting artifact of the Moscow Treaty, however, is that it is in the course of being implemented, but there are no sublimits or scheduled limitations and reductions that have to take place.

Those limitations and reductions must be achieved by the time the treaty goes out of force in 2012, midnight, the last day of December 2012. Those limitations will be in force essentially on a momentary basis.

We are in the process of moving in that direction. I believe both countries will actually achieve those reductions without much trouble.

Senator REED. Can I ask one question about the Moscow Treaty? There is speculation that the limits could be reached, but moments after the bell tolls at midnight, they could, in fact, restore, and we could restore launchers or warheads to exceed the limits. Is that true?

Ms. GOTTEMOELLER. As a legal matter, that would be possible. In realistic terms, it is not possible because, of course, these are big, complicated systems. It takes time to deploy them.

There are two other points I would like to make about the situation we are in at the moment, and the first one is, of course, that we no longer have the predictability of a verification and inspection regime related to the START treaty. The Moscow Treaty was basically built on the foundation of the START treaty.

The important line in the Moscow Treaty was a provision that stated that the START treaty remains in force according to its terms, which meant that START would continue, its verification regime would continue, and it would underpin the Moscow Treaty.

Now, with START out of force, there are simply no verification measures, and our predictability regarding the Russian strategic forces and, ultimately, our confidence level in what is going on there will go down.

Senator REED. Thank you very much.

My time has expired. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Reed.

Senator Inhofe.

Senator INHOFE. Thank you, Mr. Chairman.

Let me just say, I am probably not going to take all my time, but I have been concerned about the process, and I am not blaming anyone. Certainly, it is not a partisan concern that I have. I look at how significant this is, and this is our 17th hearing and the 30th witness. Some have appeared more than one time.

I appreciate this, Mr. Chairman. The hearing that we had 2 days ago, we had two witnesses that were opposed to the treaty. That is 2 witnesses out of 30 witnesses in this period of time were opposed to it. I am reminiscent of what we went through at that time—it was the Bush administration's fault, in my eyes—in the Law of the Sea Treaty.

I didn't like it. I sat through these hearings. I am on both the Senate Armed Services Committee and the Senate Foreign Relations Committee. They had all the hearings, and everyone thought this was the greatest thing in the world. The Democrats and the Republicans agreed. I remember it passed out in 2007 of the Senate Foreign Relations Committee. The vote was, I think, 17 to 4. It was pretty near unanimous.

Yet, they had gone through the same thing. They hadn't had any of the witnesses opposed to it. At that time, I was also the ranking member or, actually, the chairman—we were a majority at that time—of the Senate Environment and Public Works Committee, which had jurisdiction over that issue, as well as this committee.

We had hearings. We had hearings here, and we had hearings in that committee. We had a lot of people come in to shed new light on it. This went all the way back, this treaty, to the Reagan days, as this one does, too. So many people came forth that we ended up just completely reversing that thing.

Just my only concern is to have both sides heard, and those who are opposed to it, we have a lot of very smart people that have been opposed to it. The concerns that I have haven't really been addressed that much. You folks are doing a great job, and I think this is probably the most informed of the administration that I have heard.

But still there are a lot of things that need to be discussed on this thing. Senator McCain talked about the quote, his concern with the missile defense connection here with Sergey Lavrov. There is another quote by him that I want to quote, and that is from April 8. You all are very familiar with this quote:

> "The treaty can operate and be viable only if the United States of America refrains from its development of its missile defense capabilities quantitatively and qualitatively."

I was very much disturbed back when we shut down our intentions in both Poland and the Czech Republic. I think when our own intelligence shows us the capability that Iran is going to have by perhaps as early as 2015. I am concerned about what we are going to have in place at that time to take care of some of the problems to defend this Nation and my 20 kids and grandkids. I have been very much concerned about that, and so I do have a lot of questions.

What I would like to do, instead of getting responses to questions now, is in addition to the questions that Senator McCain had in his opening statement and in his questions, I would like to add other questions in the areas of modernization, such as is $100 billion a sufficient investment in our nuclear delivery systems over the next decade? What assurances can you provide that the administration is committed to modernizing the above programs? Why aren't they addressing this in the 1251 report? What is our triad going to look like in the future?

Under verification, is the verification of the treaty adequate to give us the same understanding of the new Russian systems as we have of current Russian systems, thanks to START I? How important is it that we get telemetry of the new Russian missile tests in order to understand the capabilities of the systems?

The administration says on one hand that the treaty is verifiable, but on the other hand, it says that cheating is irrelevant. You have talked a little bit about that. Do you agree cheating is irrelevant? And you have already answered that question. If it doesn't matter if Russia cheats, then why do we need the treaty?

Other issues, in missile defense, we have talked a little bit about that. But I would like to know when will the United States be able to deploy an SM–3 IIB, if that is under the new Phased Adaptive Approach (PAA) system, as well as when will we be able to support the Phase 1 in terms of the radar, the early warning radar system? Where will it be deployed? When will it be deployed? Which are the candidate countries?

In areas of tactical weapons, that is one thing we really haven't heard anything why. I am not as smart as you guys and the other people who are involved in this thing. So I don't understand why in the world we weren't concerned and addressed the tactical weapon thing in the original treaty.

What I am going to do, Mr. Chairman, is ask that all these questions in the list that we are providing be answered. But the only one I would like to have you address right now is the tactical weapons.

Being outnumbered or outflanked by 10 to 1—it is very disturbing to me. This would be something that would more directly affect or enhance the capability of, in my opinion, a terrorist. Maybe you could just use the remainder of my time talking a little bit about tactical weapons, if you would, please?

Ms. GOTTEMOELLER. Yes, Senator Inhofe, with pleasure.

Actually, with regard to tactical nuclear weapons, it was very clear from the outset, and as the Obama administration was coming into office, the Strategic Posture Commission, other eminent commissions were looking at this question. Indeed, the agreement was among a number of eminent experts and the incoming administration that we must tackle the problem of tactical nuclear weapons.

The conclusion was, first, we needed to replace the START treaty. The START treaty was going out of force in December 2009, and we needed to move with dispatch to negotiate a follow-on treaty to START that would provide the transition from START to the next stage of arms reductions. But there was always a very, very clear commitment to going after tactical nuclear weapons, nonstrategic nuclear weapons.

President Obama in April, when he signed the New START treaty, said very clearly we are now ready to move on to nonstrategic, as well as nondeployed nuclear weapons in the next stage of reductions. I am pleased that in the context of these negotiations, President Medvedev as well has agreed that we must continue with further negotiations in the future and further reductions. We have the opportunity to work with our Russian colleagues on this.

There is one important factor that affected the decisionmaking in this regard, and that is that the NATO countries, our NATO allies in this year are involved in a review of their strategic concept. As they review their strategic concept, they are tackling the very important issue of what to do about nonstrategic nuclear weapons, tactical nukes inside the NATO alliance. We really felt it was very important that we not in any way—in any way—undermine that important process of the NATO strategic review, which, of course, we take part in as a member of the NATO alliance.

In many ways, we did not want to rush ahead of NATO and NATO decisions in our own plans for negotiating further reductions.

Senator INHOFE. Madam Secretary, I appreciate that.

My time has expired. But for the record, I would like to have you go into a little more depth as to why then the tactical weapons weren't a part of this. I understand what you are saying, but I think we need to elaborate on that.

[The information referred to follows:]

A more ambitious treaty that addressed nonstrategic/tactical nuclear weapons would have taken much longer to complete, adding significantly to the time before a successor agreement, including verification measures, could enter into force following the START treaty's expiration in December 2009. This fact, combined with the need to consult closely with our allies before addressing nonstrategic/tactical nuclear weapons, did not support broadening the scope of the New START treaty. This approach was consistent with the bipartisan Perry-Schlesinger Congressional Strategic Posture Commission's recommendation to "pursue a step-by-step approach," and to make the first step "modest and straightforward." The Commission recommended deferring negotiations on tactical nuclear weapons until after a START successor agreement had been concluded.

At their London Summit on April 1, 2009, President Obama and President Medvedev committed to "achieving a nuclear-free world, while recognizing that this long-term goal will require a new emphasis on arms control. . . ." President Medvedev expressed interest in future discussions on measures to further reduce both nations' nuclear arsenals when he and President Obama signed the New START treaty in Prague on April 8, 2010. As President Obama made clear on that occasion, we intend to raise strategic and nonstrategic/tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions.

Senator INHOFE. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Inhofe.

The administration does have a significant number of questions, which we have asked. The answers are not yet due. It is a large number. But we will, of course, expect that the answers will be filed by the time they are due. If not, if you could make sure that you come to us, let us know that you can't meet a deadline and seek an understanding relative to that.

Ms. GOTTEMOELLER. Thank you, Mr. Chairman. It is our expectation we will answer them in the time accorded to us.

Chairman LEVIN. All right. Then, Senator Inhofe may have additional questions, which he referred to, and any of those questions we would give you a reasonable time to answer, if they are in addition to the ones already submitted. That would be true for all the members of the committee that if there are additional questions for the record, we will get them to you.

Ms. GOTTEMOELLER. Certainly, sir.

Chairman LEVIN. Senator Chambliss.

Senator CHAMBLISS. Thanks, Mr. Chairman.

Let me thank both of the witnesses, both for not just being here today, but for the work you did on this. It is easy to look back from our standpoint and be critical. But having been in your shoes and negotiated over the years in law practice, I understand how difficult your job was.

The way I understand this, though, I am puzzled by the numbers. We knew, obviously, during the course of the negotiation that the number of Russian weapons were in decline. They have been in decline over several years, and actually, the maximum number allowed under the treaty is not even present in the Russian inventory now. We obviously knew that. So the Russians have an opportunity to build up their inventory while we are required to go down with our inventory.

That part of the negotiation bothers me, to some extent. But the numbers part of it, or the fuzzy numbers part of it, bothers me even more is the Russians could line up 15 long-range bombers on a runway and load them up with 6 bombs each that would contain nuclear warheads, and that would be 90 bombs that would be in those 15 long-range bombers. Yet, under the rules of this treaty, that only counts as 15 bombs or 15 warheads.

Why would we agree to something like that? Why wouldn't it be a one-for-one deal on both sides with respect to those kinds of counting?

Ms. GOTTEMOELLER. Senator Chambliss, those are excellent questions. First of all, neither the Russian Federation nor the United States has for many years, on a day-in/day-out basis, loaded nuclear weapons on their bombers. They are, of course, retained as part of our nuclear arsenal, if needed. But on a day-in/day-out basis, they are not on so-called "strip alert," ready to fly out.

There are many reasons for that, but the primary one is that we are not in the kind of crisis era of the Cold War. There is a view that, in fact, the bombers can be in that role. In our case, we are really placing an emphasis more and more on conventional missions for our long-range bombers.

I think in our own Armed Forces, in our Air Force, there is a very firm view that we did not want to have to over count our bombers if we have more bombers than the Russian Federation does. I am going to allow my colleague to speak to this in a moment. But if we had to count more bombs on the bombers, that would really up the numbers in the central limits for warheads inside the treaty as far as we are concerned. We would end up paying a price for it.

That was one of the critical issues. We wanted to find a counting rule for the bombers that would continue to express that they have a nuclear mission, but that on a day-in/day-out basis, they really don't carry nuclear bombs.

We do have some security in this regard because we have a right during onsite inspections to go and check and look inside the bombers. We even have a right to take radiation detection equipment and check out what is inside the bombers. If we find that the Russians are starting to put nuclear bombs back on their bombers, we are going to find out about it.

Senator CHAMBLISS. Dr. Warner, any comment? Let me just preface before your comments that I appreciate your comments, Sec-

retary Gottemoeller. But the fact is that we know that we have loaded nuclear weapons on our bombers. It happened 2 years ago. It may have been by accident, but it does happen.

Second, the Russians have a long-range plan for the production of additional bombers that I know, Dr. Warner, you are very well aware of, and we have no similar plan. That is one reason this particularly concerns me.

Excuse me, Dr. Warner, go ahead.

Dr. WARNER. No problem, sir.

To summarize or to spin off of the point that was made by Secretary Gottemoeller, if we counted by the rule of what is operationally deployed, what is on, then the number would have been zero. We elected to use a representational number of one, which, as you say, does not actually adequately express the real capability of the bombers on both sides. Having said that, because these bombers are not on alert, that was a better solution than zero.

The other point that has been made is that bombers are slow fliers relative to ballistic missiles, and in the arcane analysis of strategic stability, of the threat that one can pose to one another, bombers are less destabilizing. They do not have the promise of delivering a first strike within minutes, within 10 minutes, which is the possibility of both the ballistic missile characteristics of the ICBMs and SLBMs.

Under the START treaty, bombers were also under counted. They were under-counted in a somewhat different way. It depended whether they had air-launched cruise missiles or bombs, but there has been a tradition of counting them in this manner.

I agree with you that the 1,550 doesn't really represent the total capability of either side by a few hundred weapons. But in our view, it represented an effective practice for doing this that is similar to the de facto arrangements that are present in the Moscow Treaty, and it is very similar to what was done under START.

Senator CHAMBLISS. There is reference in the treaty with regard to mobile launchers. But there is no reference to rail launchers. Yet, we have seen reports in the press and reports coming out of Russia that rail-launched mechanisms are under consideration by the Russians.

Was there a reason that rail mobile launchers were not included?

Ms. GOTTEMOELLER. Yes, sir. The very direct reason is that, at the present time, neither the United States nor the Russian Federation deploys rail mobile ICBMs. I will underscore that should the Russians begin to develop and deploy rail mobile ICBMs, they would be captured by the central limits of this treaty. They would be captured by the definition of launchers.

In that case, we would go to the Russians in the Bilateral Consultative Commission and say, "all right, you are deploying a new system. We have to work out the special inspection and verification measures that will be required for this new system." There may be some other changes that would have to be made, but all of those measures that would relate to a newly deployed rail mobile missile we would be able to work out.

Dr. WARNER. The definition of an ICBM launcher really says anything that can hold or launch an ICBM will count as a launcher. The fact that we didn't specify rail or road, anything that meets

that definition would be counted and captured as a launcher. The definition of an ICBM, in terms of the distance of the type of missile, we will also capture.

While there were rail mobile launchers in the Soviet period, and they lasted until about 2005, there are none today. There may be talk of future ones. We will see. But we gave a definition of the ICBM launcher and ICBM that would absolutely capture them. They would count. Arrangements for the specific questions of new bases that might be involved would be undertaken in the normal way if either side adds systems to its strategic arsenal.

Senator CHAMBLISS. Very quickly, if this treaty is ratified, and 2 years from today, President Obama decides he wants to nullify the treaty, can he simply write a letter to President Medvedev, or whoever it may be, and say we are no longer going to comply with the treaty?

Ms. GOTTEMOELLER. If that were the case, sir, the President would make a determination that the treaty is no longer in our national security interests, and the procedures would be followed.

To be quite honest with you, I don't know exactly what the procedures would be. But this is only to say that as in other arms control treaties back through time and a large number of national security treaties in general, there is a withdrawal clause that if the U.S. President and the United States decide that a treaty is no longer in our interest, in our national security interest, there is an opportunity to withdraw.

Senator CHAMBLISS. Thank you very much.

Chairman LEVIN. Thank you, Senator Chambliss.

Senator Thune.

Senator THUNE. Thank you, Mr. Chairman.

Secretary Gottemoeller and Dr. Warner, thank you for being with us today. I want to get at the rationale behind the New START limit of 700 delivery vehicles. I want to preface that by saying that a year ago, we had General Cartwright, who is the Vice Chair of the Joint Chiefs of Staff and a former head of STRATCOM, before our committee. He testified in front of this committee that he would be "very concerned about endangering the triad if the number of strategic delivery vehicles dropped below the 800 number."

Yet, the New START treaty limits the number of delivery vehicles to 700. I guess I would be interested in knowing, if you could walk me through, what occurred during the negotiations on this particular issue of delivery vehicles. What will the negotiating transcript reflect with regard to the discussion of delivery vehicles?

Because at the outset, we were talking about a range of 500 to 1,100, and how do we end up at the 700 number?

Ms. GOTTEMOELLER. Senator, I am going to let my colleague speak to this question mostly, but I did want to make an introductory remark, which is that, quite rightly, you point to the joint understanding of July 8, 2009, that President Obama and President Medvedev signed in Moscow. The Russians proposed 500. We had proposed 1,100.

This was the Russian attempt to constrain our delivery vehicles and constrain our ability to upload. They were trying to drive our numbers down very low for delivery vehicles, and the negotiation that ensued, I think, really represented a very solid move away.

I will tell you, quite honestly, as the negotiator, I was surprised that the Russians didn't try harder to go after upload capability on the U.S. side. As a matter of fact, that was one of the early goals that they stated very, very clearly, from their expert community. It was a surprise to me. But we ended up, I think, in a very good place.

Ted?

Dr. WARNER. Let me directly address the issue of the 800 to 700. As the negotiations unfolded in the summer and into the early fall, one of the key issues was the definition of a deployed versus a nondeployed system. The fact that we then adopted a definition that a deployed missile is only when the missile is located in its launcher—in the SSBN tube, in the SLBM tube, in the strategic submarine, in the silo launcher, or on a mobile ICBM launcher—why did that make a difference?

Over the next decade, we are going to have two of our strategic submarines in this lengthy midlife overhaul, which is coming at the middle of their 40-plus years of service in order to restore their nuclear power plant and do other work. When they are in this overhaul for well over nearly 2 years, they do not have missiles associated with them. Therefore, those submarines do not count. Under START, they used to count even in this shape. Under this new treaty, they do not count when there are no missiles in the launchers.

A second issue that we worked out with the Russians was the ability to reduce the number of launch tubes on a given submarine. Today, the Trident has 24 launch tubes. We have plans, as indicated in the 1251 report, to take out four of those tubes, to disable them for use in launching strategic missiles.

Therefore, we can still have the same number of submarines at sea. We can spread the number of warheads we want to carry per boat among the other 20 missiles, but we have 4 less launchers on each.

When you combine that ability to not count the 2 that are in extended overhaul and you are able to take 4 tubes out of 14 submarines, that alone adds up to 96 less tubes. Those 96 less as deployed systems were not being taken into consideration by General Cartwright when he was citing the 800 number.

In addition, we have the opportunity to take the Minuteman missiles out of their launchers, to maintain the launcher in a caretaker status, if we choose to, and to maintain the missile and, if circumstances make it necessary, to put them back in. There is flexibility in the ICBM force as well on this deployed and nondeployed.

Finally, we also show in our 1251 report that we intend to convert to conventional-only capability some share of the B–52Hs, which has not yet been determined. It is part of that mathematics of coming to the 700.

Now there is a third limit we haven't mentioned. There is the limit of 1,550 warheads, 700 deployed strategic delivery vehicles—not really launchers, but delivery vehicles. Finally, there is the 800 limit, which means that it is the deployed and nondeployed ICBM and SLBM launchers and bombers.

That provides a constraint on how many nondeployed systems you can have, but the things I just indicated—the individual elimi-

nation or conversion of tubes on submarines, the two submarines in deep overhaul, even with the test assets and so forth, we have the flexibility to live with the 700 deployed systems and nevertheless meet our needs and be able to have a strong, resilient triad.

Senator THUNE. Without making the distinction between deployed and nondeployed, did you have, going into the negotiations, though, a bottom-line, redline number of deployed delivery vehicles? Was 800 that number?

Dr. WARNER. Under the NPR, there had been a number of studies done, beginning in mid-spring, as the NPR got underway, which were looking at the requirements to meet the national guidance and many other requirements. They helped inform our negotiating position.

There was never a set number that it would be, and to my knowledge, there was never an individual number, "no lower than." But I think once we came to understand the flexibility provided in the deployed and nondeployed, then we could take the very concrete rules of the game, if you will, do the analysis and see, could we sustain a triad? Could we sustain a triad with enough warheads spread amongst it that it would meet our requirements not only against Russia, but against all other things that we wish to use our central strategic deterrent force for?

There was a steady, in a sense, a rolling responsive analysis done as the different rules became available. Ultimately, it was agreed by the Joint Chiefs, by the Secretary, and within the interagency all the way to the President, that under these conditions, this would meet the requirements.

Senator THUNE. Were you and the administration prepared to go below 700?

Dr. WARNER. I can't speak to that. It is above my pay grade. We went to 700, and that is where we ended up.

Senator THUNE. My understanding is the Russians aren't going to have to cut their number of delivery vehicles because they are already well below 700. Since they don't have to make cuts in the number of delivery vehicles, what concessions did we obtain from the Russians in exchange for us reducing our delivery vehicles below that number?

Ms. GOTTEMOELLER. Sir, from the outset, it was clear that the Russians were suffering a mass obsolescence of their older ICBMs, the SS–18s and the SS–19s. We went into the negotiations knowing that this was what the circumstance was. We needed to have what we needed out of the negotiations, which, as Ted has gone through very well, was 700 deployed delivery vehicles and 800 deployed and nondeployed launchers. That is great flexibility for maintaining our strategic nuclear triad.

As far as the Russians are concerned, they are going to be required to stay under the central limits of this treaty, particularly with regard to the 1,550 warheads. That central limit will be very important, I think, in maintaining an equal balance and strategic stability between the two sides.

If I may mention also the deployed and nondeployed launcher limit will affect them because they have a lot of decrepit launch systems, submarines and so forth, that they are going to have to put some money into destroying. It is, I think, important to under-

score that the Russians will have to do some eliminations under this treaty as well.

Senator THUNE. The 1251 report explains that the U.S. nuclear force structure under the treaty could comprise 420 ICBMs, 240 submarine-launched ballistic missiles, and 60 bombers. Now the deployments at the maximum level of all 3 legs of the triad under that explanation add up to 720 delivery vehicles.

So it is mathematically impossible for the United States to make such a deployment and be in compliance with the treaty's limit of 700 deployed strategic nuclear delivery vehicles. Clearly, there would have to be some additional reduction decisions made. There is also, since it covers prompt global strike, that platform, my assumption is there is going to have to be and there are going to be decisions made down the road.

I guess my question would be which of the 3 legs of the triad do you envision we would have to reduce in order to accommodate getting from today, because if we are talking about 720 and the number of the hard limit is 700, you have some ground we would have to give up there, as well as counting prompt global strike under the number. How would you see us accommodating this?

Ms. GOTTEMOELLER. Senator, this also is a question for my colleague from the Pentagon, but I did want to make one point. That is that this treaty has a 7-year reduction period, 10-year life of the treaty overall. In order to implement these reductions, we have a 7-year period. We don't have to hit 700 any time soon.

Dr. WARNER. The deliberations were among the Chiefs with the Commander of STRATCOM, General Chilton, and ultimately in discussions with the Secretary and the Deputy Secretary. The baseline planning structure that was laid out in 1251 is the one that you cited.

It does have an addition problem in the sense that it has a couple of "up tos," the up to 420 in the ICBM launchers for the single RV Minuteman, the up to 60 heavy bombers, and the 240 launchers on the submarines. It was just thought that at this time with the 7-year reduction—those are very close. The main center of gravity of how to get there is really established within those numbers. The swing area is between 20 on the ICBMS and that of the bombers.

The decision was made at this time not to need to make that commitment yet because of the 7 years. It will be examined over time. It provided us with flexibility. I want to emphasize that the lion's share of what is going to be in that strategic force is provided in that baseline.

Senator THUNE. But what I heard you just say, however, is that you would see that reduction being dealt with between ICBMs and bombers?

Dr. WARNER. At this point, with this set of decisionmakers, that is certainly where they were.

Senator THUNE. I see my time has expired. Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Thune.

Senator Sessions.

Senator SESSIONS. Thank you, Mr. Chairman.

I appreciate the opportunity to be with you, and I remain of the view that we have been too anxious to obtain this treaty, which is not the most important thing we need to be doing at this time to deal with the proliferation of nuclear weapons. We have serious problems in a lot of different areas that need rigorous attention.

I just noticed in today's Washington Times a report that two intelligence officials and other U.S. officials with access to intelligence reports said information compiled over the past 7 months showed agents from several foreign governments, including Brazil, Burma, Iran, Nigeria, North Korea, Sudan, and Syria, pursued members of the Abdul Khan network that distributed nuclear weapons.

Now the essence of that story, as far as I am concerned, is that a lot of countries are still seeking nuclear weapons, and this is the kind of proliferation that is dangerous. I worry about it. I don't feel like we have this right. I don't feel like the Russian strategic weapons level is that important since they probably are going to reduce their strategic weapons anyway, and we achieve nothing with regard to the tactical weapons that they have and in which they have a 10-to-1 advantage. I am just raising questions about this, and I am concerned about it.

With regard to missile defense, I am uneasy about that. The protestations from the administration notwithstanding, in response to a question for the record from Senator Wicker to Secretary Clinton from the May 18th hearing in the Senate Foreign Relations Committee, Secretary Clinton seemed to deviate from a prior administration statement on the planned deployment of Phase 4 of the PAA to missile defense in Europe.

In her response, Secretary Clinton referred to that deployment as being possible, not the program of record plan that had been presented to Congress and is specified in the Ballistic Missile Defense Review of 2010. The statement, in effect, says including the possible deployment of SM–3 Block IIB under Phase 4 to defend the ICBM threat from the Middle East.

Do we have a firm commitment from this administration to move forward to actually deploy SM–3 Block IIB in Europe to defend against possible missile threats from the Middle East, or is it now a possible activity sometime in the distant future?

Ms. GOTTEMOELLER. Senator, I think the emphasis in that response was on the adaptive nature, the so-called PAA. It has been the policy of the administration to keep a close eye on the actual threats that are emerging and to adapt the deployments according to the threats as they are emerging against our friends and allies in Europe. I believe that that was the intent of that question and no other.

Ted, do you wish to add anything on this?

Dr. WARNER. I would have to look for the exact wording. I have not been in the middle of PAA. It does have the four phases. The fourth phase is associated with the Standard Missile-3 Block IIB. On this question of whether it is an ironclad commitment that they go at this time or that is what the phase looks like is going to depend on how things evolve. I would have to check the NPR, sir.

Senator SESSIONS. Let me tell you what concerns me. We have deployed a missile system in Alaska and several in California that

could defend us potentially against most of the world and particularly the Pacific, North Korea-type launch, a limited launch against the United States.

The plans were to take that three-stage missile, develop it into a two-stage missile and be able to deploy it in 2015, 2016 in Central Europe that could provide an additional protection against missile launches from Iran and perhaps a rogue launch from Russia. Well, this has been abandoned.

What the technology has proven, it is simpler to have a two-stage than a three-stage, and out of the blue, it has come forward that there is going to be a plan to develop a new SM–3 Block IIB that could be deployed in Europe, that could be effective against an Iranian missile launch that would come over Europe to get to the United States. It is very good place throughout that region to deploy it. It is not even on the drawing board. It is 2020, after the time intelligence experts tell us it could be deployed.

So not having fallen off the turnip truck last week, I am of the view that this signals a decision not to deploy what was virtually ready to begin to be deployed, to put it off in the future, and I am not at all surprised that Secretary Clinton would say it is possibly now to be deployed and no longer our plan to deploy it.

Why shouldn't we conclude in Congress that as part of your negotiations with Russia, who have consistently objected to the deployment of these kind of missiles, why shouldn't we conclude that you have, indeed, conceded an important commitment of the United States to deploy a system in Europe? Why shouldn't we conclude that?

Ms. GOTTEMOELLER. Senator Sessions, you will have to forgive me. I am not an expert on the details of our missile defense plans and programs, as I was really focused on these START negotiations. We will certainly get answers for you for the questions that you raise.

I did want to emphasize, though, the statement of policy that the United States made. It is our unilateral statement made on April 7, 2010.

It says:

> "The United States missile defense systems are not intended to affect the strategic balance with Russia. The United States missile defense systems would be employed to defend the United States against limited missile launches and to defend its deployed forces, allies, and partners against regional threats. The United States intends to continue improving and deploying its missile defense systems in order to defend itself against limited attack and as part of our collaborative approach to strengthening stability in key regions."

As far as our negotiations were concerned, we were very, very clear with the Russian Federation that that is our policy, and that is not only for the Russian Federation, but for other audiences, that is a statement of our policy.

Senator SESSIONS. But the Russians have made clear that they don't accept any qualitative or quantitative improvements in our missile defense system, and they have the right to withdraw from the treaty for really any reason they choose. They have made clear

they will not accept that. It appears to me we will be in a situation, if we actually go forward with a system in Europe, that the Russians will threaten to get out of the treaty because we do not have an agreement on this with the Russians.

The Russians are saying no, and we are saying we don't give up the right to go forward. They have a right to get out of the treaty, and I think it is going to be very much a threatening situation that they will suggest that this treaty, they will move out of the treaty if we have even a limited system.

Which really is bizarre since it has no threat to Russia and the massive number of weapon systems they have. A limited system that could protect us from a rogue state or an accidental launch is not a threat to Russian strategic nuclear weapons.

Dr. WARNER. Senator, if I could?

Senator SESSIONS. Yes.

Dr. WARNER. I want to build exactly on the point you made. In the Russian unilateral statement, they do make the statement about they are unhappy with potential qualitative or quantitative increase in our missile defenses.

Senator SESSIONS. They have been objecting for years over that.

Dr. WARNER. That is what Secretary Gates said. They have not been an enthusiast for our missile defense for many years. But they go on, in the last sentence, they say, "Consequently, the extraordinary events referred to in Article XIV of the treaty," this is the potential withdrawal, "also include a buildup in the missile defense capabilities of the United States of America such that it would give rise to a threat to the strategic nuclear force potential of the Russian Federation." That will not be the case of the PAA.

Senator SESSIONS. It wouldn't be the case with the two-stage system we were talking about putting in Europe either.

Dr. WARNER. I understand. I understand.

Senator SESSIONS. They objected to that.

Dr. WARNER. I am saying they can object all they want, but the only point they made here about potential withdrawal is if we build missile defenses that threaten the strategic nuclear potential. That is not the case. You made the case yourself very clearly and very correctly, sir. That is the small, the 30 or so interceptors we currently have for the defense of the Homeland and the system that we are building in Europe, if we go ahead with all four phases.

I think the possibility here is largely, does the Iranian threat emerge? If the Iranian threat emerges, I believe we are committed to move forward all the way through Phase 4. So the only possibility issue is were we to succeed in getting the Iranians not to pose an intercontinental nuclear threat to us.

But in any case, I think you have made the point very clearly, sir, that the Russians are concerned about something undercutting their strategic nuclear forces. Our missile defense activities will not do that. Neither our system in Alaska, nor our system in California, nor the PAA in Europe will pose it. General O'Reilly has talked with the Russians and briefed the Russians to make clear to them the nature of our future capability through all four phases will meet our needs vis-a-vis Iran, will not threaten Russian strategic nuclear forces.

Senator SESSIONS. I hope that is true. I will just say that we went from a situation in which we were able to deploy a system in 2016, when the intelligence agencies tell us we need it, to a fourth phase of a plan that possibly could result in the deployment of a system in 2020.

Forgive me if it makes me uneasy. It appears to me this is the way you kill a program. You put it off indefinitely into the future and take it off reality and put it in unreality in the vapors somewhere in the future, and that is my concern.

I thank all of you for your hard work. I know this is not an easy thing. I don't criticize you for working on this and trying to bring us a treaty that we can support. But I am uneasy about it.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Sessions.

Senator Hagan.

Senator HAGAN. Thank you, Mr. Chairman.

I thank the witnesses for testifying, too, and also for your hard work on this very, very important issue.

Ratifying the New START provides the United States with an opportunity to negotiate with Russia on tactical nuclear weapons, as well as enhance U.S.-Russian military and diplomatic ties. We will not obtain cooperation with Russia on tactical nuclear weapons without ratifying the New START.

During yesterday's hearing, subject matter experts not tied to the administration indicated that tactical nuclear weapons are valuable to the Russian military doctrine. The witnesses also indicated that Russian tactical nuclear weapons are also strategic threats. Additionally, Russia uses its numerical advantage in tactical nuclear weapons to forcefully coerce its neighbors to adopting policies that favor Russian interests.

My question is if the Senate ratifies New START, what type of Russian cooperation do you believe we can expect to receive regarding limitations on tactical nuclear weapons and preventing proliferation?

Ms. GOTTEMOELLER. Thank you, Senator.

The preamble to the treaty makes note of our aspiration once we have completed the process of negotiating New START and ratifying it, bringing it into force, that we will move on to further stages of negotiations. President Medvedev has made statements about this in his speech in Helsinki, and he also agreed with President Obama last April a year ago—that is, in 2009—when they were in London together, that there would be further stages of negotiations following completion of the New START treaty.

We are currently thinking ahead and planning. As President Obama stated very clearly in Prague just this last April, when we signed the treaty, he stated very clearly that we will move on in the next stage of negotiations to tackle tactical nuclear weapons and also nondeployed nuclear weapons.

These are very clearly our tasks laid out ahead, and I want to get on with it.

Dr. WARNER. The only thing I would add, it will be a tough negotiation. People have talked about the reality of the symmetry in numbers between these two and the relative dependence. That doesn't mean, and I don't think there will be any zero answer on

tactical nuclear weapons. In other words, the Russians will want to sustain a tactical nuclear arsenal.

I do believe there is an opportunity to negotiate reductions and limitations in this area, and the only road to getting on that path at this point is to ratify and enter into force with this treaty. That will give us, I think, an impetus to begin what will be a difficult negotiation.

Senator HAGAN. Thank you.

It is important to discuss nuclear arms control with the Russians within the context of the evolving U.S.-Russian relations and geopolitical realities. New START ensures a degree of predictability in the bilateral relationship that can be used as an important mechanism to facilitate cooperation on our mutual interest, regional interest. New START does not prevent the United States or Russia from developing new strategic nuclear weapons capabilities.

Yesterday, our committee received testimony from a variety of experts, once again not tied to the administration. Witnesses emphasized the Russians placed enormous significance in maintaining strategic nuclear parity with us. The witnesses anticipated that the Russians would likely build more strategic nuclear capabilities. If anyone fears that Russia is poised to launch a buildup of nuclear weapons, would it not be wiser to restrain them with this particular treaty?

Ms. GOTTEMOELLER. Ma'am, it is absolutely the case that both countries have the opportunity to modernize under this treaty. That is the very first paragraph of Article V. We both have the opportunity to modernize. I think that is important.

The other key point about this treaty, and you mentioned the word yourself, "predictability." You mentioned predictability in U.S.-Russian relations overall, but within our strategic nuclear relationship, the predictability that is provided by this treaty helps us to understand not only what decisions the Russians are making about modernization, where they are heading, what kinds of programs they are developing and beginning to deploy, but also helps us to understand what is going on with the day-to-day operations of their forces.

That is what is so very important about the verification and inspection regime. I do agree that predictability, it is inherent in this treaty if it is ratified and enters into force.

Dr. WARNER. I might just add one point. I have been a student of first, Soviet, and then, Russian, military affairs for too many years to count. I think we still have a hangover of the impression we had about the Russian military and the Russian strategic nuclear forces of the late 1990s. At that time, given the great difficulties that Russia was encountering, it was really true that this obsolescence of the old systems, the block obsolescence was just marching at them. The forces were coming down.

The Russia of 2010, while it was affected by the global financial problem, is still quite different. They have the options to invest and even to have larger forces were they to choose to do so.

I think it is very important—it is a fact that because of the different composition of our forces—we are deMIRVing our ICBMs and taking off the multiple warheads. They continue to have mul-

tiple warheads in silos and also a new system that has just become operational for the first time, a multiple warhead mobile system.

Because of the difference in structure, they have a smaller number of delivery vehicles than we do. But they are really in the position—and I think the IC has commented on this—that if they wished to go to higher levels, something they really couldn't contemplate, I think, a decade ago, they can contemplate now.

Even though they are below the limits right now, it is useful to ensure they stay no higher than those limits that are mutually agreeable that both sides can ensure their security with.

Senator HAGAN. Thank you.

Ratifying New START will underscore our commitment and emphasis toward nonproliferation, and ratifying the treaty will assist us in garnering international consensus regarding nuclear weapons proliferation challenges from rogue states, such as Iran and North Korea. It will also send a positive message in achieving consensus with other countries on nuclear issues.

Will ratifying New START assist the United States in encouraging the non-nuclear states to sign and abide by the Nonproliferation Treaty?

Ms. GOTTEMOELLER. Ma'am, already with the negotiation and signature of New START, we have been seeing some beneficial effects in this regard. As you may recall, back in May, after the treaty was signed in April, we were working very hard to achieve a sixth resolution in the U.N. Security Council in order to send a strong message to Iran that their behavior with regard to their nuclear program is unacceptable to the international community.

I understand that the diplomacy with regard to achieving that resolution was very much strongly conducted by the United States of America, and the cooperation we were able to achieve with the Russian Federation, with China, with other members of the U.N. Security Council, the influence of our having just signed the START treaty was very evident.

I think there has already been a beneficial effect. I believe if we ratify this treaty and it is brought into force that the momentum of that process will ensure other successes in our fight against the proliferation of nuclear weapons and other weapons of mass destruction.

Senator HAGAN. Dr. Warner?

Dr. WARNER. The other incident that happened was the review conference on the Nonproliferation Treaty. We have a responsibility within that treaty. We, the super powers, the Russians and the United States—the old term, "the super powers"—we had a commitment to make progress in reducing our nuclear capabilities, our nuclear forces, as we also ask others to forego having nuclear weapons.

Now that doesn't guarantee anything, but I think we did get a result in that review conference held at the U.N. in May. I think we got a very favorable resonance there as well from having recently, just a month before, signed this treaty.

Senator HAGAN. Do you hear any discussions with these countries as we debate this treaty?

Ms. GOTTEMOELLER. Yes. I just wanted to mention that two other major conventions have been discussed this morning, and that is

the review conference for the CWC and the BWC. Both of those major conventions will have review conferences over the next 2, 3 years.

I think the kind of leadership we have been able to show by negotiating signing and, we hope, ratifying and bringing into force the New START treaty will, I think, really boost our opportunities for success, for making really positive progress on some of the problems that the compliance report of DOS has raised.

The Russian Federation has, indeed, had difficulties achieving all of the necessary reductions in its chemical weapons stockpile. I must say, Senator, that the United States is having difficulties as well. We have to work together on ensuring that the proper reductions are taken according to the CWC.

It is the kind of cooperative environment that was created by the START negotiations that will help us not only in our work with Russia, but with other countries under these major regimes. I really do think that it provides us the momentum we need for leadership across this arena in both arms control and in nonproliferation.

Senator HAGAN. Thank you.

Thank you, Mr. Chairman.

Chairman LEVIN. Thank you, Senator Hagan.

On the CWC compliance issue, you said parenthetically that we weren't able to comply with its requirements either. As a matter of fact, we had to seek and obtain an extension of the deadline from 2007 to 2012. Is that correct?

Ms. GOTTEMOELLER. Yes, sir.

Chairman LEVIN. That was a one-time extension?

Ms. GOTTEMOELLER. Yes.

Chairman LEVIN. If we can't make the destruction requirements by 2012, then what? Then we won't be in compliance, but there is no provision for an extension. Then what?

Ms. GOTTEMOELLER. Sir, we hope to and plan to work very closely again with the Organization for the Prohibition of Chemical Weapons, the implementing body of the CWC, and with the other countries who are concerned with this matter, including the Russian Federation, to come to some accommodation.

Chairman LEVIN. Now the reference, I believe, was made by Senator Thune to a statement of General Cartwright relative to the minimum number of delivery vehicles that he would be comfortable with. I understand, I believe here that Mr. Elliott, who is Admiral Mullen's representative to the talks, is with us here this morning. I don't want to ask him to comment on it here because my colleagues aren't here for that purpose, and it wouldn't be fair for me to do that, I don't think.

But it is appropriate for me to say that there will be a question for the record for General Cartwright about that comment. We would appreciate, Mr. Elliott, your identifying that in the answer to a question for the record, what that comment was and whether there is a change in his position or exactly what his position is relative to it. It was a comment that was made, apparently.

Now, on the statement as to whether or not DOS has concluded that the Russians are not in compliance or whether or not there remain questions or uncertainty or lack of clarity about Russian compliance with the CWC, I am going to ask you, Secretary

Gottemoeller, also for the record to go into that issue into a little more detail.

Senator McCain made reference to a language here that I can't find, but I assume it is in this report finding that the Russians are not in compliance. That is different from uncertainty about compliance or lack of clarity about compliance. Somewhere in there, those words "not in compliance" appear that were quoted by Senator McCain. Can you comment for the record on that finding and what the significance is of that relative to our consideration of the New START treaty?

Ms. GOTTEMOELLER. Yes, sir. I would be glad to do so. I welcome the opportunity to look closely at the language myself. I don't know it by heart.

[The information referred to follows:]

The July 2010 Compliance Report states that the United States is unable to ascertain whether Russia's CWC declaration is complete as it relates to CW production facilities, CW development facilities, and CW stockpiles, and whether Russia is complying with the CWC-established criteria for destruction and verification of its CW. For further information about the U.S. conclusions regarding Russia's compliance with the CWC, please see the classified version of the July 2010 Compliance Report.

We believe the New START treaty should be evaluated on its merits, and that it will make a vital contribution to maintaining stability and transparency in our strategic nuclear relationship with Russia.

We note that under the START and INF treaties, the Russian Federation did not attempt to increase its forces beyond treaty limits; we have no reason to expect Russia will do so under New START.

Chairman LEVIN. Okay. On the tactical nuclear weapons, they were not covered by START I. Is that correct?

Ms. GOTTEMOELLER. That is correct, sir.

Chairman LEVIN. I think it is in everybody's interest that those negotiations begin and that we try to reach an agreement on tactical nuclear weapons with the Russians. I think many presidents have said the same thing, and I think this president has said the same thing. But they have not yet been included in a treaty, and my question is would rejection of the New START treaty make it more or less likely that we would begin discussions with the Russians on limitations of tactical nuclear weapons?

Ms. GOTTEMOELLER. Sir, I have testified before the Senate Foreign Relations Committee that I believe it would be unlikely that we could begin negotiations on tactical nuclear weapons if we are not to ratify and bring this treaty into force.

Chairman LEVIN. Would it be less likely?

Ms. GOTTEMOELLER. Unlikely.

Chairman LEVIN. Does that mean less likely than would be the case otherwise?

Ms. GOTTEMOELLER. It is also less likely.

Chairman LEVIN. Now, on the Votkinsk missile facility, apparently there is not going to be a continuation of inspections at Votkinsk. Is that accurate, Dr. Warner?

Dr. WARNER. At Votkinsk, we had the permanent, what was called, perimeter and portal monitoring system. This was the final production plant for the mobile missiles that they were producing. For all 15 years of the START treaty, we had the right and we did have people there at Votkinsk 24/7/365, and they had an opportunity to man the key rail line going in and out of this final assem-

bly plant and to verify the exit from that final assembly plant of mobile ICBMs.

The Russians had a reciprocal right to do a plant in Utah that would produce the Peacekeeper because the Peacekeeper by the time of the signing of the treaty was identified as a potentially mobile missile. In the end, the Russians never implemented their right on the Peacekeeper at that plant in Utah, though they had implemented their right to do an Intermediate-Range Nuclear Forces (INF) missile production plant throughout the life of the INF Treaty.

Chairman LEVIN. Therefore?

Dr. WARNER. That provision—no, no, I am sorry.

Chairman LEVIN. Back to Votkinsk, if you would?

Dr. WARNER. On Votkinsk, the provision to have that portal monitoring is not part of this treaty.

Chairman LEVIN. Why not?

Dr. WARNER. Instead, we have the opportunity to have a notification 48 hours in advance of the exit of any solid-fueled ICBM or SLBM from a production facility, including Votkinsk, and that same provision applies to the United States for any solid-fueled ICBM or SLBM. That will provide us the information that a new system is entering the inventory. There will also be a notification when that missile goes to its first place, its first destination, to a test area, to a storage facility, to an operating base.

Chairman LEVIN. From the point of view of DOD, that is an adequate or more than adequate protection for whatever potential breakout or potential manufacture that the Russians may pursue?

Dr. WARNER. We believe that that, in combination with the notifications, the unique identifiers now are applied to all missiles, ICBMs, SLBMs, as well as to heavy bombers. In the context of all the other components, notifications, and so forth, we believe that is adequate to have effective verification.

Ms. GOTTEMOELLER. Mr. Chairman, may I just add one word on this point?

Chairman LEVIN. Yes, please.

Ms. GOTTEMOELLER. I think it is important to note that the decision to depart the Votkinsk permanent presence continuous monitoring site as START goes out or went out of force on December 4, 2009, that decision was made in 2008. The agreement for an orderly departure from Votkinsk was completed before the end of 2008.

Chairman LEVIN. That was determined before the new administration took over?

Ms. GOTTEMOELLER. Correct.

Chairman LEVIN. I just have one more question.

Ms. GOTTEMOELLER. That doesn't mean that we didn't try to push back against it, but the Russian Federation——

Chairman LEVIN. That was not part of the negotiations. That was a previously decided?

Ms. GOTTEMOELLER. Sir, we did try to—how shall I put it? We did try to work the issue with the Russians, nevertheless. But they believed that they had an agreement already on this matter.

Chairman LEVIN. I see. I will just ask one more question if you are ready to go.

The question has been raised about the European missile defense. My question here is does this treaty limit the PAA or a European missile defense in any way?

Ms. GOTTEMOELLER. Absolutely not, sir.

Chairman LEVIN. I know there are differences over whether or not that switch of systems to the PAA was the right one. NATO has approved it, and I think it is clearly a much stronger defensive system for us, but whether or not people agree to that or not, it seems that is a separate issue from this treaty. That shift is not prohibited by the treaty. It is not covered by the treaty. It is not limited by the treaty.

I think that what is being pulled in here is not a matter which is really relevant to our consideration of the treaty. It is a relevant question, and people can argue it. But I don't see how it is relevant to the consideration of this treaty.

Senator Lieberman.

Senator LIEBERMAN. Thanks, Mr. Chairman.

Welcome, Secretary Gottemoeller and Dr. Warner. I apologize that I wasn't able to get here at the outset of the hearing because I am very interested in the subject. I just had a meeting I couldn't skip out of.

Let me first thank you for the extraordinary effort that you both made in achieving the treaty. I think this may be the seventh hearing the Senate Armed Services Committee has held on it, and what is clear, I think, I'm sure clear to you is in any treaty, a treaty is a compromise. You have goals, but you are negotiating with another party. You can't always achieve everything you want, presumably, unless there is a real imbalance in the parties negotiating.

That is true here, too. I think we have to try to, as we go forward, though members of the committee—I, myself, have some questions—balance out what we gain from the treaty, what the world gains, but what we gain particularly and what, if any, risks are being taken. I just have a couple of questions in that regard. I don't want to hold you a lot longer.

This first is based on my staff's report about an exchange you had with Senator Sessions before I was here. So if I am mistaken, it is totally my staff's fault. [Laughter.]

Senators never make mistakes. Mistakes are only made by staff.

Chairman LEVIN. Hear, hear. [Laughter.]

Senator LIEBERMAN. I understand that you had a discussion with Senator Sessions with regard to the PAA for missile defense that the Obama administration has adopted, and though I think there may have been some unease at the beginning when it was first adopted, I think, generally speaking, around here there is support for that approach now.

I believe what I have heard is that you left the impression that the completion of the four stages of the PAA, including the deployment of the SM–3 Block IIB, was contingent on the development of Iranian ballistic missile capacity. I think that the administration has been clear, from the moment the President first announced the PAA, that deploying all four stages is not in any sense contingent or optional, but mandatory and a necessity, as it were.

That is certainly how I viewed it. Of course, this committee has had testimony from the previous head of the Defense Intelligence Agency that as early as 2015, with outside help, presumably from somebody like North Korea or somebody else, that Iran could have ICBM capacity that could reach the United States.

I don't know if you want to clarify this one for the record or you want to say anything more at this point. But if, in fact, your testimony is that the completion of the PAA, including SM–3 Block IIB, is conditional, that is different than I understood before.

Dr. WARNER. I was the party who wandered into that assertion, Senator. I probably would have been safer staying with the first assertion, saying I need to get back and check on the specific wording.

Make no mistake, my responsibilities in my current position and over these last few months, this last year or so, have not included being in the middle of this issue.

Senator LIEBERMAN. Okay.

Dr. WARNER. The issue was the use of the word "possible" deployment of the force. We will check into the specific wording and get back to you. But the PAA, it was my personal understanding, is linked to and it was focused on regional threats because those are the threats that are coming first, and that is why Phases 1 and 2 were of that character. Phase 3 was to cope with threats that were deeper into Europe, and Phase 4 would finally address those that would go very deep into Europe and all the way to the United States.

I made, perhaps erroneously, the statement that I believe the only adaptive part of this if that threat fails to materialize, then I said that might be the possible reason why we would not move to Phase 4. You say you understand we are committed to all the way to Phase 4. Let me simply check on that.

[The information referred to follows:]

As outlined during the announcement of the Phased Adaptive Approach (PAA) in Europe last September and in the Report of the 2010 Ballistic Missile Defense Review, while further advances in technology or future changes in the threat could modify the details or timing of later phases, we plan to deploy all four phases of the PAA in Europe, including Phase 4. This last phase will include an upgrade to the Standard Missile-3, the Block IIB, which will provide capability against a potential intercontinental ballistic missile launched from the Middle East against the United States. As the President has stated, this approach will "provide stronger, smarter, and swifter defenses of American forces and America's allies."

Senator LIEBERMAN. Okay.

Dr. WARNER. That was the root of this set of judgments or assessments.

Senator LIEBERMAN. Good. I appreciate that. If you will let us know for the record, that would be helpful.

I think there are two general categories of concern that people have. Most people I talk to, Members in the Senate, would like to get to a point to vote to advise and consent to the New START treaty. I certainly would.

The two categories of concern are about the modernization program for our nuclear weapons stockpile since the number of deployed warheads will go down, and we have had a lot of testimony that was on that, and I think a lot of work is going on on that. The second set of concerns is about verification, and some of this is

based on classified NIE on this question, some of it just on open testimony. Obviously, I will ask about that.

This really goes to—actually, we were in a classified briefing, and we started to ask this question to some of the folks from the IC, and they said, "no, that is not our responsibility. You should talk to the people who negotiated the treaty. There are certain reductions in our verification capacities under the proposed New START treaty from what they were under START."

Perhaps if you could, Secretary Gottemoeller, I would ask you to begin just to respond to those concerns and indicate what the process was by which they were agreed on and why you think that they don't represent unacceptable risk for the United States?

Ms. GOTTEMOELLER. Senator Lieberman, the verification regime in the New START treaty is different from that in the START treaty. It does respond very much to the central limits and obligations in this treaty. There are differences among the various verification measures.

But I would argue that in some cases we actually improved and adjusted verification measures. For example, in one case, we found that our inspectors, when they were flying into the point of entry to begin an onsite inspection, they weren't having enough time to recover from their travel, and it was becoming a safety concern. We made some changes, extended some time periods, so that they could get a night's rest.

Those kinds of changes we made were, and I want to make this point very clearly, on the basis of the 15 years of implementing the START treaty. We had experienced inspectors come along on our delegations, and we had experienced operators of the strategic nuclear forces who knew the nuclear weapons systems inside and out. In some cases, they said we are wasting time on inspections with this, that, or the other procedures. We need to focus in on what is really important.

They really, really worked hard to make sure that we were making the New START treaty verification regime more efficient and effective, as well as helping to address what had become a problem under the START treaty. That is that some of the inspection measures became drags on the operational tempo of our strategic forces.

This was clearly laid out as an instruction in our July joint understanding that President Obama and President Medvedev signed. There was a clear instruction in there: look for ways to make all these measures more efficient and effective and less expensive to implement.

So the result, I think, is an excellent one and really does serve the needs of this treaty, that is, response to the need to monitor and verify its central obligations.

Senator LIEBERMAN. Mr. Chairman, my time is up. With your permission, I would ask one more question.

Chairman LEVIN. Please.

Senator LIEBERMAN. Thanks. I have had particular concern about the reduction and what is required under the treaty for telemetry exchanges because of the extra information they give us to verify the capacity of the ballistic missiles. Incidentally, I gather that we were both obliged to exchange telemetry information on all of our

tests for missiles under START, and as far as we know, the Russians complied with that quite completely.

This is now limited in the New START treaty to five telemetry exchanges, to exchange telemetry information for five missile tests at the choice of the country testing. In testimony before our committee last week—I believe it was last week—General Chilton said that the treaty does provide for less transparency than we would prefer into Russian missile programs.

There is a difference here, I understand, that the telemetry is not really necessary to verify compliance with the New START treaty, but we are losing in the reduction of the number of telemetry exchanges transparency into the Russian missile programs. I wanted you to talk, Madam Secretary, if you would, about why we accepted that reduction.

Ms. GOTTEMOELLER. Sir, it points to the comment I made a moment ago. That is for the verification of this treaty, telemetry is not required. In particular, we took a new approach to counting under this treaty, to more precisely count the number of reentry vehicles on ICBMs and SLBMs.

I think this helps us quite a bit, by the way, because we don't end up over counting the D–5, which the use of attribution rules under START meant that we were continuing to count the D–5 up at eight reentry vehicles per missile where we had started to download it over time, five, six, whatever number of reentry vehicles on each missile. We ended up with a situation where the D–5 under START was being over counted, so to say.

In this treaty, we went to a different approach to counting. As a result, we did not need to determine attribution for each missile. To determine an attribution rule, we would check to see how many reentry vehicles were being released from each missile type during tests, and then we would determine the attribution rule. If it were tested with 10, we would count it with 10 under START.

We have, I think, a better, more precise counting rule under this treaty. As a result of that, the need to have telemetry to actually verify the measures of the treaty went away.

I have to say that I wanted to make two comments about this. First of all, it is not strictly true to say that under START we had to exchange telemetry on all missile tests because we had the opportunity to request an exception, to say we don't want to exchange telemetry for this particular test. Forgive me, I don't remember off the top of my head, but it was five or seven, some number like that. We could get that amount to give you a more precise view of that.

We always had the right to request not to exchange telemetry under START. In this new treaty, we looked at what the concepts of this new treaty were in terms of our overall relationships with the Russians, and we said we need to develop further transparency.

By the way, this is an approach that the previous administration took with regard to the Moscow Treaty, always that we would have transparency, additional transparency developing. In this treaty, the Russians came in and proposed an actual treaty article, Article VIII, that speaks to the need to develop additional voluntary transparency measures on top of the verification regime. The telemetry measures under this new treaty are very much in that spirit.

My personal view is, given the experience we had in the negotiations that the Russians became more enthusiastic about this exchange over the course of the negotiations, I think that it will turn out to be quite beneficial in transparency terms, give us important insights into the Russian missile force developments over the life of the treaty. But, of course, that means we will have to bring the treaty into force.

Senator LIEBERMAN. Yes, so I take it the Russians asked for a reduction in the number of exchanges of telemetry information on missile tests?

Ms. GOTTEMOELLER. We actually went into this treaty negotiation pretty much with a proposal as to how to proceed, and then we worked out, over the course of time, what the overall numbers would be. So it is up to five, as you noted, launches of ICBMs or SLBMs.

Senator LIEBERMAN. Okay. I take it from the end of your last answer, you are saying that you think that there is an opportunity to negotiate with the Russians post New START treaty the kinds of exchanges of telemetry and other information regarding ICBMs that we are discussing now?

Ms. GOTTEMOELLER. The telemetry provisions in the treaty call for, actually, an annual review.

Senator LIEBERMAN. Yes.

Ms. GOTTEMOELLER. We would get together and have an opportunity every year to review where we are, how it is working. Is it going well, not going so well? What can we do to improve it? Again, that is another reason why I look very positively on the telemetry exchange under this treaty.

I think we could make it responsive over the 10-year life of the treaty to our needs. Of course, the Russians will be trying to do the same thing, but I look upon it as very beneficial from that perspective and potentially very positive transparency regime.

Senator LIEBERMAN. Thanks. I have taken more than enough time. I thank you for your patience, Mr. Chairman.

I thank the two witnesses.

Chairman LEVIN. Not at all. I also have a few more questions. First, I want to comment on what Senator Lieberman said relative to the Phase 4 of the so-called PAA. I agree with him as to his comment that it is our understanding part of the plan to proceed to that. It is not stated to be conditional on anything. I think he is correct.

I am glad that, Dr. Warner, you will check on that and correct the record if you need to or give a statement for the record because that is my understanding is the same as Senator Lieberman.

Second, Madam Secretary, I asked you before to give us for the record where Russian compliance, questions about Russian compliance remain unresolved or unclear or where we have concluded that they are in a state of noncompliance. If you could give us a chart, it may not be able to be total because, I think, there are so many requirements for compliance, but you could give us types of compliance requirements where we believe that there is lack of clarity as to whether they are in compliance, lack of resolution, which I think is a different issue—apparently, a DOS report uses

those terms in a different way—and also where we have reached a judgment that Russians have not complied.

Okay, those are three categories. There may be more categories. If so, give us a fourth or a fifth category. But we have to clarify that issue because of the report.

[The information referred to follows:]

The following is a list of the bilateral or multilateral arms control treaties involving Russia and the United States where there are compliance issues concerning either Russia or the United States.

1. Treaties for which the United States has unresolved compliance issues regarding Russia (the United States has raised compliance issues with Russia in each case)
   - Biological and Toxin Weapons Convention (BWC)
   - Chemical Weapons Convention (CWC)
   - Strategic Arms Reduction Treaty (START)—prior to the treaty's expiration
   - Treaty on Conventional Armed Forces in Europe (CFE)
   - Treaty on Open Skies
2. Treaties for which Russia has raised compliance issues concerning the United States
   - Biological and Toxin Weapons Convention (BWC)
   - Chemical Weapons Convention (CWC)
   - Strategic Arms Reduction Treaty (START)—prior to the treaty's expiration
   - Treaty on Conventional Armed Forces in Europe (CFE)
   - Intermediate-Range Nuclear Forces (INF) Treaty
3. Treaties for which the United States is uncertain about Russia's compliance
   - Please see the classified response to QFR #1 provided separately
4. Treaties for which the United States has concluded that Russia is not in compliance with certain of its obligations [1]
   - Same as #1 above

Chairman LEVIN. On the telemetry issue, and I am glad Senator Lieberman raised that issue, as I understand, the telemetry point is that we no longer use telemetry to verify this treaty to begin with. But that to the extent we get telemetry and exchange it, it could be useful in terms of providing additional transparency into the Russian program.

Ms. GOTTEMOELLER. Yes, sir.

Chairman LEVIN. Is that a summation of it?

Ms. GOTTEMOELLER. Yes.

Chairman LEVIN. Okay. There are other ways of providing transparency as well, but this is a plus, but not necessary for compliance determinations?

Ms. GOTTEMOELLER. Yes, sir. That is correct.

Chairman LEVIN. Okay. Do you have anything more?

Senator LIEBERMAN. No.

Chairman LEVIN. Okay. We thank you both, and it is very useful to have these hearings. There will be additional questions, I am sure, for the record. Please give us answers promptly.

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[1] For details, please see "Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments," U.S. Department of State, July 2010 (known as the Compliance Report). With regard to the START treaty, the Compliance Report (p. 8) states "Notwithstanding the overall success of START implementation, a number of longstanding compliance issues that were raised in the START treaty's Joint Compliance and Inspection Commissions (JCIC) remained unresolved when the treaty expired on December 5, 2009. Throughout the term of the treaty, the Parties worked through diplomatic channels and in the JCIC to ensure smooth implementation of the treaty and effective resolution of compliance issues and questions."

There is a letter I have been requested to put into the record in support of the treaty signed by former commanders of STRATCOM. It is signed by seven former commanders of STRATCOM and will be made part of the record.

[The information referred to follows:]

July 14, 2010

Senator Carl Levin
Chairman
Senate Armed Services Committee

Senator John McCain
Ranking Member
Senate Armed Services Committee

Senator John F. Kerry
Chairman
Senate Foreign Relations Committee

Senator Richard G. Lugar
Ranking Member
Senate Foreign Relations Committee

Gentlemen:

As former commanders of Strategic Air Command and U.S. Strategic Command, we collectively spent many years providing oversight, direction and maintenance of U.S. strategic nuclear forces and advising presidents from Ronald Reagan to George W. Bush on strategic nuclear policy. We are writing to express our support for ratification of the New START Treaty. The treaty will enhance American national security in several important ways.

First, while it was not possible at this time to address the important issues of non-strategic weapons and total strategic nuclear stockpiles, the New START Treaty sustains limits on deployed Russian strategic nuclear weapons that will allow the United States to continue to reduce its own deployed strategic nuclear weapons. Given the end of the Cold War, there is little concern today about the probability of a Russian nuclear attack. But continuing the formal strategic arms reduction process will contribute to a more productive and safer relationship with Russia.

Second, the New START Treaty contains verification and transparency measures—such as data exchanges, periodic data updates, notifications, unique identifiers on strategic systems, some access to telemetry and on-site inspections—that will give us important insights into Russian strategic nuclear forces and how they operate those forces. We will understand Russian strategic forces much better with the treaty than would be the case without it. For example, the treaty permits on-site inspections that will allow us to observe and confirm the number of warheads on individual Russian missiles; we cannot do that with just national technical means of verification. That kind of transparency will contribute to a more stable relationship between our two countries. It will also give us greater predictability about Russian strategic forces, so that we can make better-informed decisions about how we shape and operate our own forces.

Third, although the New START Treaty will require U.S. reductions, we believe that the post-treaty force will represent a survivable, robust and effective deterrent, one fully

capable of deterring attack on both the United States and America's allies and partners. The Department of Defense has said that it will, under the treaty, maintain 14 Trident ballistic missile submarines, each equipped to carry 20 Trident D-5 submarine-launched ballistic missiles (SLBMs). As two of the 14 submarines are normally in long-term maintenance without missiles on board, the U.S. Navy will deploy 240 Trident SLBMs. Under the treaty's terms, the United States will also be able to deploy up to 420 Minuteman III intercontinental ballistic missiles (ICBMs) and up to 60 heavy bombers equipped for nuclear armaments. That will continue to be a formidable force that will ensure deterrence and give the President, should it be necessary, a broad range of military options.

We understand that one major concern about the treaty is whether or not it will affect U.S. missile defense plans. The treaty preamble notes the interrelationship between offense and defense; this is a simple and long-accepted reality. The size of one side's missile defenses can affect the strategic offensive forces of the other. But the treaty provides no meaningful constraint on U.S. missile defense plans. The prohibition on placing missile defense interceptors in ICBM or SLBM launchers does not constrain us from planned deployments.

The New START Treaty will contribute to a more stable U.S.-Russian relationship. We strongly endorse its early ratification and entry into force.

Sincerely,

General Larry Welch
USAF, Ret

General John Chain
USAF, Ret

General Lee Butler
USAF, Ret

Admiral Henry Chiles
USN, Ret

General Eugene Habiger
USAF, Ret

Admiral James Ellis
USN, Ret

General Bennie Davis
USAF, Ret

Chairman LEVIN. We will stand adjourned with our thanks.
[Questions for the record with answers supplied follow:]

QUESTIONS SUBMITTED BY SENATOR CARL LEVIN

ARMS CONTROL TREATY COMPLIANCE ISSUES

1. Senator LEVIN. Secretary Gottemoeller, please provide a table or list of the bilateral or multilateral arms control treaties involving Russia and the United States where there are compliance issues concerning either Russia or the United States, indicating whether the United States or Russia have raised compliance issues concerning the other, whether there is uncertainty about compliance, whether there are unresolved compliance issues, or whether the United States has concluded that Russia is not in compliance with its obligations.

Secretary GOTTEMOELLER. The following is a list of the bilateral or multilateral arms control treaties involving Russia and the United States where there are compliance issues concerning either Russia or the United States.

1. Treaties for which the United States has unresolved compliance issues regarding Russia (the United States has raised compliance issues with Russia in each case)
   - Biological and Toxin Weapons Convention
   - Chemical Weapons Convention
   - Strategic Arms Reduction Treaty—prior to the treaty's expiration
   - Treaty on Conventional Armed Forces in Europe
   - Treaty on Open Skies
2. Treaties for which Russia has raised compliance issues concerning the United States
   - Biological and Toxin Weapons Convention
   - Chemical Weapons Convention
   - Strategic Arms Reduction Treaty—prior to the treaty's expiration
   - Treaty on Conventional Armed Forces in Europe
   - Intermediate-Range Nuclear Forces Treaty
3. Treaties for which the United States is uncertain about Russia's compliance
   - Please see the classified response provided separately
4. Treaties for which the United States has concluded that Russia is not in compliance with certain of its obligations [1]
   - Same as #1 above.

2. Senator LEVIN. Secretary Gottemoeller, during the hearing on July 29, 2010, Senator McCain asked a question about whether the U.S. Government has concluded that Russia is not in compliance with the Chemical Weapons Convention (CWC). The July 2010 unclassified Department of State (DOS) compliance report states that the United States is "unable to ascertain whether Russia's CWC declaration is complete as it relates to CW production facilities, CW development facilities, and CW stockpiles, and whether Russia is complying with the CWC-established criteria for destruction and verification of its CW." Has the U.S. Government concluded that Russia is not in compliance with the CWC or, as the report states, that it is unable to ascertain Russia's compliance?

Secretary GOTTEMOELLER. The July 2010 Compliance Report states that the United States is unable to ascertain whether Russia's CWC declaration is complete as it relates to CW production facilities, CW development facilities, and CW stockpiles, and whether Russia is complying with the CWC-established criteria for destruction and verification of its CW. For further information about the U.S. conclusions regarding Russia's compliance with the CWC, please see the classified version of the July 2010 Compliance Report.

PHASED ADAPTIVE APPROACH TO MISSILE DEFENSE

3. Senator LEVIN. Dr. Warner, during the hearing, there was a question about whether Phase 4 of the Phased Adaptive Approach (PAA) to missile defense in Europe was conditional or not. Is it correct that the plan for the PAA to missile defense in Europe includes all four phases, including the development and deployment of the Standard Missile-3 Block II interceptor in Phase 4, and that Phase 4 is not conditional? Please consult with Secretary Gates in preparing your answer, so that the Senate Armed Services Committee knows his view as well.

Dr. WARNER. As outlined during the announcement of the PAA in Europe last September and in the Report of the 2010 Ballistic Missile Defense Review, while further advances in technology or future changes in the threat could modify the details or timing of later phases, we plan to deploy all four phases of the PAA in Europe, including Phase 4. This last phase will include an upgrade to the SM–3, the Block IIB, which will provide additional capability against a potential intercontinental ballistic missile (ICBM) launched from the Middle East against the United States. As the President has stated, this approach will "provide stronger, smarter, and swifter defenses of American forces and America's allies."

[1] For details, please see "Adherence to and Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments," U.S. Department of State, July 2010 (known as the Compliance Report). With regard to the START treaty, the Compliance Report (p. 8) states "Notwithstanding the overall success of START implementation, a number of longstanding compliance issues that were raised in the START treaty's Joint Compliance and Inspection Commissions (JCIC) remained unresolved when the treaty expired on December 5, 2009. Throughout the term of the treaty, the Parties worked through diplomatic channels and in the JCIC to ensure smooth implementation of the treaty and effective resolution of compliance issues and questions."

QUESTIONS SUBMITTED BY SENATOR ROLAND W. BURRIS

SITE INSPECTIONS

4. Senator BURRIS. Secretary Gottemoeller, in the New Strategic Arms Reduction Treaty (START) there will be an annual quota of 18 inspections, instead of 28 as under the START I, and only 35 sites are eligible for inspection instead of the 70 sites under the START I. Can you describe why these reductions are in our best interest?

Secretary GOTTEMOELLER. The New START treaty verification provisions are tailored to verify the requirements of the New START treaty, which are different from the START treaty requirements.

The New START treaty provides for an annual quota of up to 18 short notice, onsite inspections to aid in verifying Russian compliance with its treaty obligations. These inspections will provide U.S. inspectors with 18 opportunities per year to select from among declared Russian strategic forces facilities to verify the accuracy of Russian data declarations and to deter cheating. Although the new treaty provides for fewer inspections than the annual quota of 28 permitted under the original START treaty, the number of facilities for which Russia provided site diagrams and which will therefore be inspectable under the New START treaty (35) is also significantly lower than the number of inspectable facilities in the former Soviet Union when the START treaty entered into force (70). As explained in the response to QFR #5 below, this is due to the fact that Belarus, Kazakhstan, and Ukraine are not Parties to New START, as well as that Russia now has fewer facilities where strategic offensive arms are located than it had when START entered into force.

The New START treaty annual inspection quota includes 10 Type 1 inspections of deployed and nondeployed strategic offensive arms, which will be conducted at operating bases for ICBMs, ballistic missile submarines (SSBNs), and nuclear-capable heavy bombers. Type 1 inspections combine many of the aspects associated with two different types of inspections that were conducted separately under the START treaty; specifically, reentry vehicle onsite inspections and data update inspections. Thus, fewer inspections annually at the operating bases will achieve many of the results of the previous START treaty inspection regime. The quota also includes eight Type Two inspections focused on nondeployed, converted, or eliminated strategic systems, which will be conducted at facilities such as storage sites, test ranges, and conversion or elimination facilities, as well as formerly declared facilities.

The administration assessed the number of Type One and Type Two inspections needed annually to meet U.S. inspection objectives as the nature of these inspection types emerged during the New START negotiations. These assessments ultimately concluded that an annual quota of 18 such inspections would be adequate to meet U.S. inspection needs.

5. Senator BURRIS. Secretary Gottemoeller, why are the other 35 sites, previously inspected under START I, now off limits?

Secretary GOTTEMOELLER. At the time of entry into force of the START treaty, there were 70 inspectable facilities in Belarus, Kazakhstan, Russia, and Ukraine. Of those 70 facilities, 55 facilities were located on the territory of what is now the Russian Federation, and 15 facilities were located in Belarus, Kazakhstan, and Ukraine.

All of the strategic offensive arms associated with the 15 facilities located in Belarus, Kazakhstan, and Ukraine were removed, thereby "eliminating" those facilities for purposes of the START treaty. Belarus, Kazakhstan, and Ukraine no longer deploy any strategic offensive arms, and so they are not signatories of the New START treaty.

During the implementation of the START treaty, Russia eliminated 12 facilities by removing the strategic offensive arms from those facilities in accordance with START treaty provisions.

The remaining eight facilities in Russia that were inspectable under the START treaty and for which Russia has not provided site diagrams under the New START treaty are either facilities that remain inspectable because they have been consolidated with another inspectable facility, or facilities that no longer have existing types of strategic offensive arms located at them.

QUESTIONS SUBMITTED BY SENATOR JOHN MCCAIN

TREATY NEGOTIATING RECORD

6. Senator MCCAIN. Secretary Gottemoeller and Dr. Warner, consistent with past practice on arms control treaties, including the Intermediate-Range Nuclear Forces (INF) Treaty and START I treaties, when does the administration intend to provide the Senate with the negotiating record of the treaty, including all elements of the record dealing with missile defenses, tactical nuclear weapons, and limiting prompt global strike?

Secretary GOTTEMOELLER and Dr. WARNER. So far as we are aware, Senators were not provided full access to the negotiating record during Senate consideration of the START treaty. Nor was the negotiating record provided to the Senate during its consideration of the ABM Treaty. Rather, information from the negotiating record was provided to the Senate in relation to a controversial interpretation of the ABM Treaty more than a decade after the Senate had provided its approval and the treaty had entered into force.

As the Senate Foreign Relations Committee noted in its report on the treaty between the United States and the U.S.S.R. on the Elimination of Their Intermediate-Range and Shorter-Range Missiles (INF Treaty), "a systematic expectation of Senate perusal of every key treaty's 'negotiating record' could be expected to inhibit candor during future negotiations and induce posturing on the part of U.S. negotiators and their counterparts during sensitive discussions." The Committee Report further noted that regularly providing the negotiating record would ultimately "weaken the treaty-making process" and "damage American diplomacy."

Of course, Senators being asked to provide advice and consent to ratification of a treaty should have a full understanding of what obligations would be undertaken by the United States upon ratification of that treaty. Thus, when a President transmits a treaty to the Senate it is accompanied by a detailed article-by-article analysis of the treaty. The analysis of the New START treaty transmitted to the Senate by the President on May 13, 2010, is nearly 200 pages long and provides information on every provision of the treaty, protocol, and annexes. This analysis includes relevant information drawn from the negotiating record. The treaty text and these materials provide a comprehensive picture of U.S. obligations under the treaty.

In addition, as you were informed in a letter dated August 10, 2010, the administration has made available to the Senate a classified summary of discussions in the New START treaty negotiations on the issue of missile defense.

Should you have any outstanding questions, we are committed to providing answers in detailed briefings, including in a classified session, if needed.

RUSSIAN TACTICAL NUCLEAR WEAPONS

7. Senator MCCAIN. Secretary Gottemoeller and Dr. Warner, some people argue that we must ratify this treaty if we ever want to engage with the Russians on reducing tactical nuclear weapons. What assurances do we have from the Russians that they are willing to negotiate reductions in tactical nuclear weapons?

Secretary GOTTEMOELLER and Dr. WARNER. At their London Summit on April 1, 2009, President Obama and President Medvedev committed to "achieving a nuclear-free world, while recognizing that this long-term goal will require a new emphasis on arms control . . . " President Medvedev expressed interest in future discussions on measures to further reduce both nations' nuclear arsenals when he and President Obama signed the New START treaty in Prague on April 8, 2010. As President Obama made clear on that occasion, we intend to raise strategic and nonstrategic/tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions.

MISSILE DEFENSE

8. Senator MCCAIN. Secretary Gottemoeller and Dr. Warner, in her prepared remarks before the Atlantic Council in April 2010, Under Secretary of State Ellen Tauscher stated that "our Russian friends needed some assurances as it negotiated deeper reductions in the absence of an Anti-Ballistic Missile (ABM) Treaty. The United States made a unilateral statement to clarify that our missile defense systems are not intended to affect the strategic balance with Russia." Why was it necessary to provide such assurances to Russia?

Secretary GOTTEMOELLER and Dr. WARNER. A number of public statements made by Russian leaders about the treaty have shown that they considered such assurances necessary in the context of reaching agreement on the treaty. Under Secretary

Tauscher's statement to the Atlantic Council referred to the U.S. unilateral statement, which was based on standing U.S. policy as articulated in the 2010 Ballistic Missile Defense Review that "while the GMD system would be employed to defend the United States against limited missile launches from any source, it does not have the capacity to cope with large scale Russian or Chinese missile attacks, and is not intended to affect the strategic balance with those countries."

The United States has made clear that U.S. missile defense efforts are not directed against Russia. As Secretary Gates stated in his May 18 testimony before the Senate Foreign Relations Committee:

> "Under the last administration, as well as under this one, it has been U.S. policy not to build a missile defense that would render useless Russia's nuclear capabilities. It has been a missile defense intended to protect against rogue nations such as North Korea and Iran, or countries that have very limited capabilities. The systems that we have, the systems that originated and have been funded in the Bush administration, as well as in this administration, are not focused on trying to render useless Russia's nuclear capability. That, in our view, as in theirs, would be enormously destabilizing, not to mention unbelievably expensive."

Russia has expressed concerns that U.S. ballistic missile defense (BMD) capabilities could eventually be a threat to Russia's nuclear deterrent; the United States, therefore, sought to convey to Russia the underlying approach outlined by Secretary Gates. To this end, we have provided, and will continue to provide, policy and technical explanations regarding why U.S. BMD capabilities such as the European-based PAA do not and cannot pose a threat to Russian strategic deterrent forces.

9. Senator McCain. Secretary Gottemoeller and Dr. Warner, did you receive assurances from Russia that they will not object to the full deployment of all four phases of the PAA in Europe?

Secretary Gottemoeller and Dr. Warner. No. The PAA was not a topic of the New START negotiations. U.S. negotiators did not seek such assurances, but the United States has provided, and will continue to provide, technical explanations regarding why U.S. BMD capabilities such as those to be deployed throughout all four phases of the European-based PAA will not pose a threat to Russian strategic deterrent forces. In addition, the United States made clear in its unilateral statement that it intends to continue improving and deploying missile defense systems.

10. Senator McCain. Secretary Gottemoeller and Dr. Warner, did you receive assurances that the Russians will not object to the potential need to increase the number of ground-based interceptors (GBI) in California and Alaska if the threat from North Korea or Iran materializes sooner than expected?

Secretary Gottemoeller and Dr. Warner. No. This issue was not a topic of the New START treaty negotiations. U.S. negotiators did not seek such assurances, but the United States made clear in its unilateral statement that it intends to continue improving and deploying missile defense systems in order to defend the U.S. Homeland against limited attack.

11. Senator McCain. Secretary Gottemoeller and Dr. Warner, if we offered assurances on missile defense, why didn't we demand similar assurances on tactical nuclear weapons?

Secretary Gottemoeller and Dr. Warner. The U.S. assurances on missile defense have been a reiteration of standing U.S. policy as articulated in the 2010 Ballistic Missile Defense Review, and explanations of the capabilities of current and planned U.S. missile defense systems. Tactical nuclear weapons were beyond the scope of the New START treaty negotiations. A more ambitious treaty that addressed tactical nuclear weapons would have taken much longer to complete, adding significantly to the time before a successor agreement, including verification measures, could enter into force following the START treaty's expiration in December 2009.

Deferring negotiations on tactical nuclear weapons until after a START successor agreement had been concluded was also the recommendation of the Perry-Schlesinger Congressional Strategic Posture Commission, which advised pursuing "a step-by-step approach," and making the first step "modest and straightforward." President Medvedev has expressed interest in future discussions on measures to further reduce both nations' nuclear arsenals. We intend to raise strategic and tactical weapons, including nondeployed nuclear weapons, in those discussions.

12. Senator MCCAIN. Secretary Gottemoeller and Dr. Warner, irrespective of threats from the Russians to withdraw from the treaty, is this administration committed to funding, developing, and deploying all elements of the PAA for missile defense in Europe, as well as implementing the strategy as portrayed in the Ballistic Missile Defense Review?

Secretary GOTTEMOELLER and Dr. WARNER. Yes. As outlined during the announcement of the PAA in Europe last September and in the Report of the 2010 Ballistic Missile Defense Review, while further advances in technology or future changes in the threat could modify the details or timing of later phases, we plan to deploy all four phases of the PAA in Europe, including Phase 4.

QUESTIONS SUBMITTED BY SENATOR JAMES M. INHOFE

NEGOTIATION STRATEGY

13. Senator INHOFE. Secretary Gottemoeller, you stated the following in your opening statement: "I want to underscore that the focus of these negotiations from beginning to end was strategic offensive arms. We were also determined to move beyond Cold War mentalities and chart a fresh beginning in our relations with Russia." If the focus was on strategic arms, why did you agree to include language associated with conventional prompt global strike and missile defense in the preamble and the treaty itself?

Secretary GOTTEMOELLER. The preamble language referred to in the New START treaty is simply a statement of fact acknowledging the interrelationship of strategic offensive and defensive arms and the potential impact of conventionally-armed ICBMs and submarine launched ballistic missiles (SLBMs) on strategic stability. The preamble also affirms that currently deployed strategic defensive arms do not undermine the viability and effectiveness of either Party's strategic offensive arms. This preambular statement was negotiated and agreed between the Parties in accordance with the Joint Understanding signed by President Obama and President Medvedev on July 6, 2009. As stated in the article-by-article analysis of the treaty, this statement is part of the shared view of the Parties of the importance of predictability and strategic stability.

Regarding the treaty's ban in Article V, paragraph 3, on the conversion of ICBM or SLBM launchers to missile defense interceptor launchers and vice versa, this ban does not constrain the United States from deploying the most effective missile defenses possible, nor does it add any additional cost or inconvenience to the implementation of U.S. missile defense plans. The Article also "grandfathers" the five former ICBM test silos at Vandenberg Air Force Base, which were converted for GBIs several years ago.

The United States protected the right to develop and deploy a conventional prompt global strike capability, should we decide to pursue such a capability under New START. Just as in the START treaty, conventional warheads deployed on ICBMs or SLBMs would count toward the aggregate warhead limit of 1,550 under the New START treaty. As envisaged by our military planners, the number of such conventionally-armed delivery vehicles and the warheads they carry would be very small when measured against the overall levels of strategic delivery systems and strategic warheads. Should we decide to deploy them, counting this small number of conventional strategic systems and their warheads toward the treaty limits will not prevent the United States from maintaining a robust, fully adequate nuclear deterrent.

14. Senator INHOFE. Secretary Gottemoeller, perhaps it was a strategic error to focus too narrowly on strategic arms and ignore Russia's superiority in tactical nuclear weapons. Why didn't you press harder to include tactical nuclear weapons in the New START?

Secretary GOTTEMOELLER. A more ambitious treaty that addressed nonstrategic/tactical nuclear weapons would have taken much longer to complete, adding significantly to the time before a successor agreement, including verification measures, could enter into force following the START treaty's expiration in December 2009. Because of their limited range and very different roles from those played by strategic nuclear forces, the vast majority of nonstrategic/tactical nuclear weapons do not directly influence the strategic nuclear balance between the United States and Russia. This fact, combined with the need to consult closely with our allies before addressing nonstrategic/tactical nuclear weapons, did not support broadening the scope of the New START treaty. This approach was consistent with the bipartisan Perry-Schlesinger Congressional Strategic Posture Commission's recommendation to

"pursue a step-by-step approach," and to make the first step "modest and straightforward." The Commission recommended deferring negotiations on tactical nuclear weapons until after a START successor agreement had been concluded.

At their London Summit on April 1, 2009, President Obama and President Medvedev committed to "achieving a nuclear-free world, while recognizing that this long-term goal will require a new emphasis on arms control ..." President Medvedev expressed interest in future discussions on measures to further reduce both nations' nuclear arsenals when he and President Obama signed the New START treaty in Prague on April 8, 2010. As President Obama made clear on that occasion, we intend to raise strategic and nonstrategic/tactical nuclear weapons, including nondeployed nuclear weapons, in those discussions.

15. Senator INHOFE. Secretary Gottemoeller, you suggest you wanted to move beyond "Cold War mentalities," yet what could be more suggestive of this mentality than a Cold War-style arms control agreement? Both Russia and the United States were moving to lower levels of strategic nuclear arms; we should have focused, instead, on dealing with the problems of nuclear proliferation, which would have been a better strategy for moving beyond Cold War mentalities. How does this treaty further nuclear nonproliferation?

Secretary GOTTEMOELLER. U.S. leadership in reducing its nuclear arsenal is essential to our efforts to bolster the nonproliferation regime and reduce global nuclear dangers. The New START treaty positions the United States to continue its international leadership role in advancing the goals of the Nuclear Nonproliferation Treaty (NPT) regime. The conclusion of the New START treaty with Russia strengthened the U.S. position during the NPT Review Conference in May 2010, and helped aid our efforts to conclude a consensus final document, which did not occur at the previous Review Conference in 2005. The new treaty set the stage for engaging other nuclear powers in fulfilling the goals of the NPT, and expanding opportunities for enhancing strategic stability.

Enhanced cooperation between the United States and Russia in the nuclear arena will contribute to the positive international environment needed to reinforce programs to secure and safeguard nuclear material stockpiles worldwide, and to strengthen the NPT. More generally, improved U.S.-Russian relations will help in achieving critical U.S. foreign policy objectives related to U.S. security, including efforts to address the nuclear programs of Iran and North Korea.

STRATEGIC BALANCE

16. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, why have you said the treaty will enhance U.S. security by stabilizing the strategic balance? Please address what is wrong with the current strategic balance.

Secretary GOTTEMOELLER and Dr. WARNER. The New START treaty is needed in order to provide a critical framework for the strategic relationship between the United States and Russia. Without a successor agreement to the START treaty, transparency and strategic stability in the U.S.-Russian relationship would erode over time due to the absence of agreed treaty limits on strategic delivery vehicles, launchers, and strategic warheads, as well as the lack of a comprehensive verification regime. While the Moscow Treaty could, in principle, be extended to retain its aggregate limits on each side's strategic nuclear warheads, there would be no associated verification or transparency measures. In the absence of the New START treaty, the probability would increase that suspicion and misunderstanding would reemerge in the U.S.-Russian relationship.

The New START treaty's verification provisions will enhance predictability and stability by providing a window into Russia's strategic nuclear forces, thereby helping to mitigate the risks of surprises, mistrust, and miscalculations that can result from excessive secrecy or decisions based on worst-case projections of Russian strategic nuclear forces in the absence of the insights provided by the combination of the comprehensive, steadily updated database, a series of mandatory notifications, and up to 18 short-notice, onsite inspections that will be conducted each year.

17. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, by reducing strategic nuclear weapons, you exacerbate the disparity between Russia and the United States in tactical nuclear weapons. How do you know you are increasing strategic stability when the Russians now can deploy more tactical nuclear warheads than the United States is permitted to deploy strategic nuclear warheads under the new treaty?

Secretary GOTTEMOELLER and Dr. WARNER. The treaty's limitations on Russia's nuclear forces are obviously an important factor in assessing the desirability of the treaty's limits. The New START treaty will enhance U.S. national security by stabilizing the strategic balance between the United States and the Russian Federation at lower levels of nuclear forces. Even so, the force structure the United States will retain under the New START treaty limits will preserve our capability to upload our strategic nuclear delivery systems in response to any attempt by Russia to leverage its tactical nuclear weapons to gain advantage. U.S. strategic forces will continue to underwrite deterrence for the United States, our allies, and our partners.

Because of their limited range and very different roles from those played by strategic nuclear forces, the vast majority of nonstrategic/tactical nuclear weapons do not directly influence the strategic balance between the United States and Russia. Furthermore, in order to support extended deterrence and power projection, the United States possesses many diverse capabilities, including strategic and tactical nuclear weapons, superior conventional forces, ballistic missile defenses and other advanced capabilities. We also benefit from significant allied nuclear and conventional capabilities.

BILATERAL CONSULTATIVE COMMISSION

18. Senator INHOFE. Secretary Gottemoeller, how do we know what will be considered a "substantive right or obligation" and therefore require a treaty amendment to change the treaty protocol, as described in Article XV of the treaty?

Secretary GOTTEMOELLER. The use of treaty-based commissions to agree on limited technical changes to improve or clarify implementation of treaty provisions is a well-established practice in arms control treaties. The New START treaty authorizes the Parties to use the Bilateral Consultative Commission (BCC) to reach agreement on changes in the Protocol to the treaty, including its annexes, that do not affect substantive rights or obligations. The START treaty's JCIC and the Intermediate and Shorter Range Nuclear Forces Treaty's Special Verification Commission were assigned similar responsibilities by those treaties, and our practice under the BCC would be informed by those important precedents in determining what will be considered a "substantive right or obligation" that would require a treaty amendment. Examples of agreements reached within the framework of the START treaty's JCIC included:

- Setting the maximum weight of equipment and supplies that may be brought into Russia or the U.S. by monitors (3,000 kg);
- Providing that the inspecting Party shall repack cargo if unpacked and inspected at a point of entry;
- Establishing new procedures for additional confirmation of the dimensions of first stages of SLBMs; and
- Establishing procedures for notification of changes to flight routes for inspection flights.

The executive branch intends to consult with the Senate in those cases in which there could be a question as to whether a proposed change in the Protocol would affect substantive rights or obligations under the treaty.

19. Senator INHOFE. Secretary Gottemoeller, the authority to act in secrecy and outside the treaty amendment process with the BCC is troubling. Who gets to decide what issues are discussed in the BCC?

Secretary GOTTEMOELLER. Any agreements reached in the BCC, or any other recorded results of its work, are presumed not to be confidential, unless otherwise agreed by the BCC. Further, just as was true under the INF Treaty's Special Verification Commission (SVC) and the START treaty's JCIC, where U.S. administrations sought to keep the Senate informed following each SVC and JCIC session, we will keep the Senate informed on BCC sessions.

The rules governing the BCC provide that each Party must notify the other Party, prior to the beginning of a session, of any questions to be raised at a meeting. This is the same as the practice in the SVC and the JCIC.

CHEATING

20. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, if "even large-scale cheating" by Russia doesn't impact U.S. deterrence, then why do we need this treaty?

Secretary GOTTEMOELLER and Dr. WARNER. Large-scale Russian cheating—indeed any Russian cheating—would be of extremely serious concern to the United States

and could have very significant negative repercussions for the U.S.-Russia relationship. However, an expansion of the Russian strategic nuclear arsenal—beyond the New START limits of 1,550 warheads—achieved by cheating or breakout would not undermine the basic second strike capability of the United States, which is the foundation of our strategic deterrent. This is the case because the survivability and response capabilities of U.S. strategic submarines at sea and alert heavy bombers would be unaffected by even large-scale Russian cheating or breakout. Russia could not achieve a sustained numerical advantage in deployed strategic warheads through such cheating or breakout because the United States retains the ability to "upload" large numbers of additional nuclear warheads on both strategic missiles and bombers deployed under the New START treaty. However, should there be indications of Russian cheating or preparations to break out from the treaty, the executive branch would view the situation as very serious and would immediately raise this matter through diplomatic channels, and if not resolved, raise it immediately to higher levels. We would also keep the Senate informed.

The New START treaty will provide stability and predictability between the world's two leading nuclear powers. The United States and Russia will be able to maintain strategic stability at lower, verifiable strategic force levels, while also gaining insight regarding the size and character of each other's strategic nuclear forces through the treaty's extensive verification regime. This would not be possible without the New START treaty. The treaty builds confidence, maintains predictability about the strategic forces of the two parties, dampens the incentives for worst case assessments that encourage arms racing, helps strengthen political and military relations between the two countries, and reinforces America's leadership in international nonproliferation efforts, distinct from our ability to maintain a survivable, effective second strike force as the basis of our strategic deterrent even when faced with large-scale cheating.

21. Senator INHOFE. Secretary Gottemoeller, why not escape the "Cold War mentality" as you say, by simply issuing unilateral commitments to reduce our respective forces rather than through a treaty?

Secretary GOTTEMOELLER. Both during the Cold War and since its end, the United States and Russia have agreed to mutual, legally binding, verifiable limits on their strategic nuclear arsenals in order to prevent an arms race, increase transparency, and mitigate mistrust and surprises. These agreements build trust and promote stability in the relationship between the world's two largest nuclear powers. Unilateral reductions would not provide the same level of predictability and stability because there would be no obligation to make or maintain them. Furthermore, there would be no verification regime associated with them.

Likewise, the Moscow Treaty does not contain a verification regime or any measures to provide confidence, transparency, and predictability. Although the Moscow Treaty could, in principle, be extended to retain its aggregate limits on each side's strategic nuclear warheads, there still would be no associated verification or transparency measures. The New START treaty is needed in order to provide a critical framework for the strategic nuclear relationship between the United States and Russia.

The New START treaty's verification provisions provide visibility into Russia's strategic nuclear forces, helping to mitigate the risks of surprises, mistrust, and miscalculations that can result from excessive secrecy or decisions based on worst-case projections of Russian strategic nuclear forces and their capabilities. The treaty will give us a window into Russia's strategic forces, facilities, and operations. The degree of transparency provided by the New START treaty verification regime, which includes providing for the presence of each other's inspectors at military facilities and the exchange of confidential strategic forces data, would be difficult, if not impossible, to achieve under nonbinding unilateral commitments to reduce our respective forces.

22. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, in a crisis, surely large-scale cheating would matter. If the Russians were to double or triple their strategic forces, they could threaten to destroy all but a few of our nuclear submarines out at sea, and then, with the remainder of their now extensive arsenal, threaten further retaliation if the United States dared to respond. In other words, they would be able to deter our deterrent. How does the treaty prevent this?

Secretary GOTTEMOELLER and Dr. WARNER. In signing the New START treaty, Russia has made a binding commitment to keep its forces within the treaty limits. Without a treaty, we would have significantly less predictability regarding Russia's strategic force plans for the next 10 years. No treaty by itself could prevent the Russians from cheating or establishing a breakout capability to increase their strategic

forces beyond treaty limits. We note that under the START and INF treaties, the Russians did not attempt to increase their forces beyond treaty limits; we have no reason to expect they will do so under New START.

That said, if Russia were to choose to violate the treaty's limits, it would not be able to achieve militarily significant advantage by cheating or breakout under New START, due to the inherent survivability of the planned U.S. strategic force structure; particularly our SSBNs (for which alert rates could be raised), and also alert bombers. Russia would also have to consider that the United States may choose to launch ICBMs under attack rather than "ride out" an attack. Additional Russian warheads above the New START limits would have little or no effect on the U.S. assured second-strike capabilities that underwrite stable deterrence.

The administration has concluded that the United States would be able to detect and respond to any attempt by the Russian Federation to move beyond the limits of the treaty in a militarily significant way, well before such an attempt would become a threat to our national security. In order to restore numerical parity in the balance of deployed strategic nuclear warheads and visibly strengthen its assured second strike capability, the United States could respond to Russian cheating in a variety of ways depending upon the international security situation, to include:

- The United States could substantially upload the ballistic missile submarine leg of the triad with hundreds of additional warheads and/or send additional strategic submarines to sea on day-to-day alert status.
- The United States could also choose to return a portion of its heavy bomber force to a day-to-day alert posture. In this posture, such heavy bombers—loaded with nuclear armaments—would be capable of takeoff and safe escape from their airbases within minutes after receiving tactical warning of an imminent Russian strike, thus improving their survivability. These bombers could then contribute substantially to any U.S. nuclear response.
- The United States could also upload additional ICBM warheads on a portion of its deployed Minuteman III force and could choose to redeploy a limited number of additional ICBMs and warheads in nondeployed silo launchers.

23. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, a significantly superior Russian nuclear arsenal could cast doubt on U.S. nuclear security guarantees. Wouldn't you agree there are political implications of cheating?

Secretary GOTTEMOELLER and Dr. WARNER. We agree absolutely that cheating would have political implications. Any cheating could affect the sustainability of the New START treaty, the viability of future arms control agreements, and the ability of the United States and Russia to work together on other issues. Should there be indications of Russian cheating or breakout from the treaty, the executive branch would promptly raise this matter through diplomatic channels and/or the BCC, and if not resolved, raise it to higher levels. We would also keep the Senate informed.

24. Senator INHOFE. Secretary Gottemoeller, you pose a false choice by claiming "the choice before us is between this treaty and no treaty governing our nuclear-security relationship with Russia, between this treaty and no agreed verification mechanism on Russia's strategic nuclear forces, between this treaty and no legal obligation for Russia to maintain its strategic nuclear forces below an agreed level." We did not have to accept this treaty. We could have held out for a better treaty that included tactical nuclear weapons, stronger verification provisions, and no constraints on missile defense and conventional prompt global strike. Why should we ratify this treaty rather than waiting for a better treaty?

Secretary GOTTEMOELLER. The New START treaty is the treaty that the U.S. and Russian presidents reached agreement on and signed in 2010. It does not constrain the United States from deploying the most effective missile defense possible, nor will it constrain our ability to develop and deploy long-range conventional strike capabilities, including prompt global strike systems.

The administration's judgment is that the New START treaty is effectively verifiable. We have concluded that the United States would be able to detect, and respond to, any attempt by the Russian Federation to move beyond the limits of the treaty in a militarily significant way, well before such an attempt could become a threat to our national security.

We did not make limiting nonstrategic/tactical nuclear weapons an objective for this treaty because from the outset the New START treaty was intended to replace the START treaty, which was about strategic offensive forces. The desire to minimize the time before a successor agreement, including verification measures, could enter into force following the START treaty's expiration in December 2009, com-

bined with the need to consult closely with our allies before addressing reductions or limitations on nonstrategic/tactical nuclear weapons, did not support broadening the scope of the New START treaty to address those weapons. Deferring negotiations on nonstrategic/tactical nuclear weapons until after a successor agreement to the START treaty had been concluded was also the recommendation of the Perry-Schlesinger Congressional Strategic Posture Commission.

Delays in ratifying the New START treaty would hurt U.S. national security by denying U.S. policymakers valuable information and insights into the strategic forces of the world's other major nuclear power. It is important to maintain a stable strategic relationship with Russia through the New START treaty as we pursue further reductions, including reductions in nonstrategic/tactical nuclear weapons.

25. Senator INHOFE. Secretary Gottemoeller, you say you want to change the Cold War mentality, yet Secretary Clinton suggests we need a "treaty governing our nuclear-security relationship with Russia." Why do we need a codified nuclear-security relationship with Russia if you intend to change the Cold War mentality?

Secretary GOTTEMOELLER. Please see the response to your question for the record #21.

MODERNIZATION

26. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, the Perry-Schlesinger Commission was unanimously alarmed by the serious disrepair and neglect of our nuclear weapons stockpile and complex. Secretary Gates warned in October 2009, "there is absolutely no way we can maintain a credible deterrent and reduce the number of weapons in our stockpile without either resorting to testing our stockpile or pursuing a modernization program." We are the only major nuclear power not modernizing its weapons and our weapons are an average of 26 years old and most are 15 or more years beyond design life. Meanwhile, other nuclear countries, including Russia, continue to modernize and replace their nuclear weapons.

When you do the math and break out the $100 billion promised over the next decade for modernization, we have some substantial shortfalls. Approximately $30 billion of this total will go toward development and acquisition of a new strategic submarine while $56 billion is required to just maintain our current dedicated nuclear forces, leaving roughly $14 billion—less if you factor in inflation—to develop and acquire: a next generation bomber, a follow-on ICBM, a follow-on nuclear air-launched cruise missile (ALCM), and develop a conventional prompt global strike capability. We cannot get there from here.

This situation has been substantiated by our experts. Our national lab directors, when they were in front of the Senate Armed Services Committee on July 15, 2010, stressed the need for substantial increases above the fiscal year 2011 budget proposal and sustained out-year commitment. While they acknowledged that the $624 million increase in funding for the weapons complex in the fiscal year 2011 request is a good first step, the directors were clear that the 10-year funding program promised by the administration may not be adequate. Are you aware if the administration is adequately funding our nuclear infrastructure as part of this treaty to continue with robust enough modernization programs to ensure we maintain a qualitative technology and capabilities gap over our peers?

Secretary GOTTEMOELLER and Dr. WARNER. The President has pledged that as long as nuclear weapons exist, the United States will maintain a safe, secure, and effective arsenal. The 2010 Nuclear Posture Review (NPR) reflects the high priority placed by the administration on the modernization of the nuclear weapons infrastructure and the sustainment of the science, technology, and engineering base required to support this goal. The President's budget proposes a substantial increase in funding for extending the life of our nuclear weapons, rebuilding of science, technology, and engineering capabilities, assuring that surveillance informs the stockpile assessment and certification responsibilities, and modernization of the nuclear weapons infrastructure. For fiscal year 2011, we requested, and the President supported, the funding we considered necessary and executable. The Section 1251 report was prepared jointly by the Department of Defense (DOD) and the Department of Energy (DOE) in response to direction in the National Defense Authorization Act (NDAA) for Fiscal Year 2010. This report sets out a 10-year budget plan that, in addition to the over $100 billion that the DOD will be spending over the next 10 years for strategic delivery systems, calls for the DOE to spend $80 billion for the National Nuclear Security Administration's (NNSA) nuclear weapons stockpile and critical infrastructure enhancements.

The President's fiscal years 2011–2015 budget plan calls for a "ramp-up" in funding in order to transform the nuclear weapons complex into a modern, efficient, capabilities-based nuclear security enterprise. This will involve an increase over the previous budget plan of $624 million in fiscal year 2011 ramping up to an increase of $1.64 billion in fiscal year 2015, an overall increase totaling $5.68 billion over the fiscal years 2011–2015 period.

We plan to use fiscal years 2011 and 2012 to establish validated baselines for four major NNSA projects called for in the NPR and by the President. These are the B61 and W78 life extension programs and the construction of two new material processing facilities: the Chemistry and Metallurgy Research Replacement Nuclear Facility and the Uranium Processing Facility. While the funding requirements identified to date represent the most complete view of our needs, these four baselines may drive a different out-year view of requirements. Finally, as each month passes, our understanding matures as to what is required to execute the NPR requirements. Since the NPR was completed after the release of the fiscal year 2011 budget request, these evolving insights into execution requirements will inform and have an impact on the fiscal year 2012 request and NNSA's associated Future Year Nuclear Security Plan.

In summary, our out-year budgets are projections, based on the NPR results and our best current estimates for the longer-term funding requirement. While funding in future budget years, or target completion schedules, may require adjustment, the administration has proposed full and adequate funding and is committed to maintaining a safe, secure, and effective nuclear arsenal.

27. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, how did out-year funding plans factor into the treaty negotiations, limitations, and goals?

Secretary GOTTEMOELLER and Dr. WARNER. The out-year funding numbers take into account the decisions that were made as part of the NPR. The New START treaty limits are consistent with decisions made during the NPR, including the requirement to modernize strategic delivery capabilities, which is not constrained by the treaty.

The fiscal year 2011 budget request and future year program plans reflect a decision to proceed with the SSBN(X) to replace the current *Ohio*-class strategic submarines starting in the late 2020s, to sustain Minuteman III ICBMs until 2030 as directed by Congress, and to sustain dual-capable B–52H and B–2 bombers until at least 2035 and 2040, respectively. The DOD is currently conducting an Analysis of Alternatives (AoA) for the next ACLM, and will initiate study of options for a follow-on ICBM in 2011–2012.

Finally, DOD is currently studying the appropriate long-term mix of long-range strike capabilities, including heavy bombers as well as non-nuclear prompt global strike systems, in follow-on analysis to the 2010 Quadrennial Defense Review (QDR) and the NPR; the results of this ongoing work will be reflected in the Department's fiscal year 2012 budget submission.

28. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, what decisions have been made or will be made to replace or modernize our aging systems based on ratification of this treaty?

Secretary GOTTEMOELLER and Dr. WARNER. DOD plans to sustain and modernize U.S. strategic delivery capabilities, as discussed in detail in the classified report submitted to Congress in response to section 1251 of the NDAA of 2010. To this end, over the next decade, the United States will invest well over $100 billion to sustain existing strategic delivery systems capabilities and modernize strategic systems.

The fiscal year 2011 budget request and future year program plans reflect a decision to proceed with the SSBN(X) to replace the current *Ohio*-class strategic submarines starting in the late 2020s, to sustain Minuteman III ICBMs until 2030 as directed by Congress, and to sustain dual-capable B–52H and B–2 bombers until at least 2035 and 2040, respectively. The DOD is currently conducting an AoA for the next ACLM, and will initiate a study of options for a follow-on ICBM in 2011–2012.

Finally, DOD is currently studying the appropriate long-term mix of long-range strike capabilities, including heavy bombers as well as non-nuclear prompt global strike systems, in follow-on analysis to the 2010 QDR and the NPR; the results of this ongoing work will be reflected in the Department's fiscal year 2012 budget submission.

FORCE STRUCTURE

29. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, during closed briefings on New START, the Senate Armed Services Committee has been provided background, in some detail, on Russian force structure and capabilities and U.S. force structure and capabilities. I understand that this treaty is all being assessed in the context of assumptions on future strategic threats and capabilities, which are not necessarily 100 percent accurate and can create pitfalls. Therefore, it is imperative that we take into full consideration the 2010 NPR which concluded that "large disparities in nuclear capabilities could raise concerns on both sides and among U.S. allies and partners, and may not be conducive to maintaining a stable, long-term relationship, especially as nuclear forces are significantly reduced." I remain concerned that we will ratify this treaty without having the full appreciation of its impacts 7 years down the road. What will the U.S. nuclear force structure look like under New START?

Secretary GOTTEMOELLER and Dr. WARNER. DOD has developed a baseline nuclear force structure for the New START treaty that fully supports U.S. security requirements without requiring changes to current or planned basing arrangements. Specifically, under baseline plans, the administration plans to field a diversified force that meets New START treaty limits by:

- Retaining 14 *Ohio*-class SSBNs and deploying no more than 240 Trident II D5 SLBMs in 12 SSBNs at any time;
- Retaining up to 420 deployed Minuteman III ICBMs, each with a single warhead; and
- Retaining up to 60 nuclear-capable B–2A and B–52H heavy bombers, while converting the remaining nuclear-capable B–1B and some B–52H heavy bombers to conventional-only capability.

This baseline force structure provides a basis for future planning. The treaty affords the flexibility to make appropriate adjustments as necessary.

30. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, how does our force rank against likely Russian force structure, including cheating scenarios, under New START?

Secretary GOTTEMOELLER and Dr. WARNER. Under New START, there is likely to be rough equivalence in U.S. and Russian strategic nuclear forces, with both sides retaining a strategic triad of ICBMs, SLBMs carried on nuclear-powered strategic submarines, and heavy bombers, although there will be differences in the details of the two force structures. Should the Russians substantially expand the number of deployed strategic delivery vehicles and/or deployed warheads by cheating or breakout, the United States could respond in a variety of ways depending upon the international security situation, to include:

- The United States could substantially upload the ballistic missile submarine leg of the triad with hundreds of additional warheads and/or send additional strategic submarines to sea on day-to-day alert status.
- The United States could also choose to return a portion of its heavy bomber force to a day-to-day alert posture. In this posture, such heavy bombers—loaded with nuclear armaments—would be capable of take-off and safe escape from their airbases within minutes after receiving tactical warning of an imminent Russian strike, thus improving their survivability. These bombers could then contribute substantially to any U.S. nuclear response.
- The United States could also upload additional ICBM warheads on a portion of its deployed Minuteman III force and could choose to redeploy a limited number of additional ICBMs and warheads in nondeployed silo launchers.

Please see the classified National Intelligence Estimate on monitoring the New START treaty for additional information relevant to this question.

31. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, is cheating harder to detect under New START than START I?

Secretary GOTTEMOELLER and Dr. WARNER. [Deleted.]

32. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, what decisions have been made to develop new systems to replace the current bombers, ICBMs, SLBMs, and ALCMs that will reach the end of their service lives in the 2030 to 2040 period?

Secretary GOTTEMOELLER and Dr. WARNER. DOD plans to sustain and modernize U.S. strategic delivery capabilities, as outlined in detail in the classified report sub-

mitted to Congress in response to section 1251 of the NDAA of 2010. To this end, over the next decade, the United States will invest well over $100 billion to sustain existing strategic delivery systems capabilities and modernize strategic systems.

The fiscal year 2011 budget request and future year program plans reflect a decision to proceed with the SSBN(X) to replace the current *Ohio*-class strategic submarines starting in the late 2020s, to sustain Minuteman III ICBMs until 2030 as directed by Congress, and to sustain dual-capable B–52H and B–2 bombers until at least 2035 and 2040, respectively. The DOD is currently conducting an AoA for the next ACLM, and will initiate study of options for a follow-on ICBM in 2011–2012.

Finally, DOD is currently studying the appropriate long-term mix of long-range strike capabilities, including heavy bombers as well as non-nuclear prompt global strike systems, in follow-on analysis to the 2010 QDR and the NPR; the results of this ongoing work will be reflected in the Department's fiscal year 2012 budget submission.

33. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, what are the impacts of unilaterally reducing the nuclear payload on each Minuteman III ICBM from three warheads down to a single warhead, while Russia has not made any corresponding statement and will actually be increasing their reliance on multiple independent reentry vehicles?

Secretary GOTTEMOELLER and Dr. WARNER. De-MIRVing the silo-based Minuteman III ICBM force enhances the strategic stability of the nuclear balance by reducing the incentives of a would-be attacking side to strike first against these high-value, fixed targets. The U.S. de-MIRVing of ICBMs is being done unilaterally because it enhances stability, irrespective of Russia's strategic force structure.

Limiting MIRVed ICBMs was not an objective in the New START treaty negotiations, which focused on extending the overarching arms control and verification architecture and permitted each Party to define its own strategic nuclear force structure and composition. While Russia continues to possess MIRVed, silo-based ICBMs, the Russian force's age and smaller size led the United States to determine that it was less important to prioritize discouraging the deployment of such systems. This is consistent with the approach taken under the Moscow Treaty. When the ratification process for the Moscow Treaty was underway in 2002, Secretary of State Colin Powell testified that, since neither the United States nor Russia has any incentive to launch nuclear weapons at each other, we no longer view the Russian deployment of MIRVed ICBMs as destabilizing to our strategic relationship.

Instead, the New START treaty grants both parties the right to determine for themselves the composition of their own strategic forces, reflecting the assessment that both sides will continue to emphasize survivable systems—including, but not limited to, MIRVed strategic missiles located on SSBNs on the U.S. side and on both SSBNs and road-mobile ICBMs on the Russian side—which, when deployed at sea or in the field, do not raise the destabilizing "use or lose" concerns posed by heavy MIRVed, silo-based ICBMs.

GAPS IN THE TREATY

34. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, why does this treaty not specifically address rail-based launchers?

Secretary GOTTEMOELLER and Dr. WARNER. The New START treaty defines an ICBM launcher as a "device intended or used to contain, prepare for launch, and launch an ICBM." This is a broad definition intended to cover all ICBM launchers, including rail-mobile launchers if they were to be deployed again in the future. Rail-mobile ICBMs and their launchers are not specifically addressed in the New START treaty because neither the United States nor Russia currently deploys ICBMs in that mode. Russia eliminated its rail-mobile SS–24 ICBM system under the START treaty. The New START treaty's terms and definitions cover all ICBMs and ICBM launchers, including a rail-mobile system should either Party decide to develop and deploy such a system.

A rail-mobile launcher of ICBMs would meet the treaty's definition of an ICBM launcher. Such a rail-mobile launcher would therefore be accountable under the treaty's limits.

Because neither Party has rail-mobile ICBM launchers, the previous definition of a rail-mobile launcher of ICBMs in the START treaty ("an erector-launcher mechanism for launching ICBMs and the railcar or flatcar on which it is mounted") was not carried forward into the New START treaty.

If a Party chose to develop and deploy rail-mobile ICBMs, such missiles and their launchers would be subject to the treaty and its limitations. Specific details about the application of verification provisions would be worked out in the BCC.

35. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, what would it take to ensure the New START addresses all current and future launchers and delivery systems?

Secretary GOTTEMOELLER and Dr. WARNER. The New START treaty already provides that all current and future strategic systems that meet the New START definitions for ICBMs and SLBMs, ICBM launchers and SLBM launchers, and heavy bombers equipped for nuclear armaments will be subject to the treaty during its lifetime. For other types of delivery systems, Article V of the New START treaty states that when a Party believes that a new kind of strategic offensive arm is emerging, that Party has the right to raise the question for consideration in the BCC. The BCC has the authority to resolve issues related to the applicability of the provisions of the treaty to a new kind of strategic offensive arm—if both Parties agree that the system is, in fact, a new kind. However, U.S. negotiators made clear during the New START treaty negotiations that we would not consider future, strategic-range non-nuclear systems that do not otherwise meet the definitions of systems limited under the New START treaty to be "new kinds of strategic offensive arms" for the purposes of the treaty.

36. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, the Perry-Schlesinger Strategic Posture Commission report notes: "The combination of new warhead designs, the estimated production capability for new nuclear warheads, and precision delivery systems such as the Iskander short-range tactical ballistic missile, open up new possibilities for Russian efforts to threaten to use nuclear weapons to influence regional conflicts." Moreover, in March 2003, then-Senator Biden stated, "After entry into force of the Moscow Treaty, getting a handle on Russian tactical nuclear weapons must be a top arms control and nonproliferation objective of the United States Government." Why does this treaty not address tactical nuclear weapons, even though tactical nuclear weapons remain one of the most significant threats to our national security?

Secretary GOTTEMOELLER and Dr. WARNER. We did not make limiting tactical nuclear weapons an objective for this agreement because from the outset the New START treaty was intended to replace the START treaty, which was about strategic offensive forces. The Joint Understanding signed by President Obama and President Medvedev on July 6, 2009, directed that the United States and Russia conclude a new legally binding agreement to replace the START treaty "at an early date." A more ambitious treaty that addressed nonstrategic/tactical nuclear weapons would have taken much longer to complete, adding significantly to the time before a successor agreement, including verification measures, could enter into force following the START treaty's expiration in December 2009. The desire to minimize the time before a successor agreement, including verification measures, could enter into force following the START treaty's expiration, combined with the need to consult closely with our allies before addressing possible limitations on and reductions in nonstrategic/tactical nuclear weapons, did not support broadening the scope of the New START treaty to address tactical nuclear weapons. Deferring negotiations on nonstrategic/tactical nuclear weapons until after a successor agreement to the START treaty had been concluded was also the recommendation of the Perry-Schlesinger Congressional Strategic Posture Commission. Moreover, because of their limited range and very different roles from those played by strategic nuclear forces, the vast majority of nonstrategic/tactical nuclear weapons do not directly influence the strategic nuclear balance between the United States and Russia.

MISSILE DEFENSE

37. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, the implications of this treaty on missile defense have yet to be clarified completely. Please explain how and why this treaty involves missile defense.

Secretary GOTTEMOELLER and Dr. WARNER. The New START treaty does not constrain the United States from deploying the most effective missile defenses possible, nor does it add any additional cost or inconvenience to the implementation of U.S. missile defense plans. The New START treaty does not contain any constraints on the testing, development, or deployment of current or planned U.S. missile defense programs.

The preamble of the treaty contains a statement of fact acknowledging the interrelationship of strategic offensive and strategic defensive arms, which was also contained in the U.S.-Russian Joint Understanding of July 6, 2009, and recognizes that this relationship will become more important as strategic offensive arms are reduced. The preamble also affirms that currently deployed strategic defensive arms do not undermine the viability and effectiveness of either Party's strategic offensive arms. These statements create no constraints regarding future U.S. BMD programs.

Paragraph 3 of Article V of the treaty prohibits the conversion of ICBM or SLBM launchers to missile defense launchers, as well as the conversion of missile defense launchers to launch ICBMs or SLBMs. Article V also "grandfathers" the five former ICBM silos at Vandenberg Air Force Base that were converted for GBIs several years ago.

The United States agreed to this provision in the treaty because it resolves a longstanding ambiguity that arose during implementation of the START treaty. Specifically, it ensures that our five former ICBM test silo launchers at Vandenberg that now are used for missile defense interceptors will not be a continuing subject of dispute with Russia and will not count against the New START treaty's limits on nondeployed ICBM launchers.

This provision will have no operational impact on U.S. missile defense efforts. As Lieutenant General O'Reilly, Director of the Missile Defense Agency, has testified, the United States has no plans to convert additional ICBM silos to missile defense interceptor launchers. Doing so would be more expensive than building smaller, tailor-made GBI silos from scratch. Moreover, as Lieutenant General O'Reilly has also stated, newly built GBI silos are easier both to protect and maintain.

With regard to the conversion of SLBM launchers into missile defense interceptor launchers, as Lieutenant General O'Reilly stated in his testimony, the Missile Defense Agency had examined earlier the concept of launching missile defense interceptors from submarines and found it operationally unattractive and an extremely expensive option. He added that the United States already has a very good and significantly growing capability for sea-based missile defense on Aegis-capable surface ships, which are not constrained by the New START treaty.

On April 7, 2010, just prior to the signing of the New START treaty, both the United States and the Russian Federation made unilateral statements concerning ballistic missile defense. These statements are not an integral part of the treaty. Russia asserted in its unilateral statement that any build-up in U.S. missile defenses that would "give rise to a threat to the strategic nuclear force potential of the Russian Federation" would justify Russia's withdrawal from the treaty. This statement is not legally binding and does not constrain U.S. missile defense programs. In fact, either side has the right to withdraw, under the terms of the treaty itself, if it decides that extraordinary events related to the subject matter of the treaty have jeopardized its supreme interests. Such withdrawal clauses are common in arms control treaties.

The Russian unilateral statement in no way changes the legal rights or obligations of the Parties under the treaty. Further, the U.S. unilateral statement in response makes clear that the United States intends to continue to improve and deploy the most effective missile defense capabilities possible, in order to defend the U.S. Homeland from limited ballistic missile attacks and to defend U.S. deployed forces, our allies, and partners from growing regional ballistic missile threats.

As the U.S. unilateral statement, the 2010 Ballistic Missile Defense Review Report, and our budgetary plans all make clear, the United States will continue to improve our missile defenses, as needed to defend the U.S. Homeland, our deployed forces, and our allies and partners. Nothing in the New START treaty limits our ability to do this.

38. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, when taken together, the treaty preamble, Russian unilateral statement, and pronouncements by senior Russian officials suggest the Russians believe there is a linkage between certain U.S. missile defense activities and their adherence to the treaty. No one in the administration has been able to explain why. The unilateral statement issued by the Russians on missile defense, released the same day as the full agreed-upon treaty text in Prague on April 8, 2010, states that the treaty "can operate and be viable only if the United States of America refrains from developing its missile defense capabilities quantitatively or qualitatively." Russia's Foreign Minister, Sergei Lavrov, stated: "We have not yet agreed on this [missile defense] issue and we are trying to clarify how the agreements reached by the two presidents ... correlate with the actions taken unilaterally by Washington," and added that the "Obama administration had not coordinated its missile defense plans with Russia." Please explain in

detail what the collection of Russian statements and actions mean for the future of missile defense under this treaty.

Secretary GOTTEMOELLER and Dr. WARNER. The United States will continue its missile defense programs and policies, as outlined in the 2010 Ballistic Missile Defense Review Report. The treaty preamble and Russia's unilateral statement have not changed our course, as laid out in the review, nor will they.

Russia's unilateral statement merely reflects Russia's current position that the "extraordinary events" that could justify Russia's withdrawal from the treaty include a build-up in U.S. missile defense system capabilities that would threaten the Russian strategic nuclear force potential. We have continuously assured Russia, however, that the U.S. BMD system is neither designed nor intended to threaten the strategic balance with Russia.

President Medvedev explained the Russian view regarding "a qualitative or quantitative build-up in the missile defense system capabilities of the United States" during a television interview in April 2010 in which he said: "That does not mean that if the United States starts developing missile defense the treaty would automatically be invalidated, but it does create an additional argument that binds us and that makes it possible for us to raise the question of whether quantitative change to missile defense systems would affect the fundamental circumstances underlying the treaty. If we see that developments do indeed represent a fundamental change in circumstances, we would have to raise the issue with our American partners. But I would not want to create the impression that any changes would be construed as grounds for suspending a treaty that we have only just signed."

39. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, do you believe that the Russians view the deployment of 10 GBIs in Poland as a threat?

Secretary GOTTEMOELLER and Dr. WARNER. The plan to deploy 10 GBIs in Poland was part of the previous administration's 2007 program for U.S. missile defense deployments in Europe. The plan was replaced by the European PAA to U.S. missile defense deployments in Europe, announced by President Obama on September 17, 2009, which does not include this deployment option.

40. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, why did the Russians voice concern about the deployment of advanced versions of the SM–3 missiles in Europe?

Secretary GOTTEMOELLER and Dr. WARNER. Russia has expressed concern that the SM–3 version slated to be deployed under Phase 4 of the European PAA, which is designed to be capable of defending against ICBMs launched from the Middle East, could pose a threat to Russia's strategic nuclear deterrent.

The administration has explained that U.S. missile defenses, including those to be deployed during all phases of the European PAA, will not pose a threat to Russia's strategic deterrent. In an effort to address Russian concerns, we have provided, and will continue to provide, policy and technical explanations regarding why U.S. BMD capabilities such as those associated with the European PAA will not undermine Russia's strategic nuclear deterrent.

41. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, do we know what the Russians think constitutes a "qualitative" or "quantitative" improvement in U.S. missile defense capabilities that could impact their strategic capabilities and allow them to withdrawal from the treaty?

Secretary GOTTEMOELLER and Dr. WARNER. We do not know what Russia would consider to be a level of U.S. missile defense capability that would give rise to a threat to Russia's strategic nuclear force potential and thus could justify its withdrawal from the treaty. However, the U.S. unilateral statement made in response to the Russian unilateral statement makes clear that U.S. missile defense systems are not intended to affect the strategic balance with Russia and that the United States intends to continue improving and deploying its missile defense capabilities in order to defend the U.S. Homeland from limited ballistic missile attacks and to defend U.S. deployed forces, our allies, and partners from growing regional ballistic missile threats.

At a press conference on April 6, 2010, just prior to the signing of the treaty, Russian Foreign Minister Lavrov stated that the Russian Federation would have the right to withdraw from the treaty if a quantitative and qualitative buildup of U.S. strategic missile defense began to have a significant impact on the effectiveness of Russian strategic nuclear forces, and that Russia would make such a determination on its own.

President Medvedev explained the Russian view regarding "a qualitative or quantitative build-up in the missile defense system capabilities of the United States"

during a television interview on April 12, 2010 in which he said: "That does not mean that if the USA starts developing missile defense the treaty would automatically be invalidated, but it does create an additional argument that binds us and that makes it possible for us to raise the question of whether quantitative change to missile defense systems would affect the fundamental circumstances underlying the treaty. If we see that developments do indeed represent a fundamental change in circumstances, we would have to raise the issue with our American partners. But I would not want to create the impression that any changes would be construed as grounds for suspending a treaty that we have only just signed."

VERIFICATION

42. Senator INHOFE. Secretary Gottemoeller, I am perplexed by your statement describing the New START verification procedures as simple and less costly. I remain concerned that the verification process contained in this treaty does not ensure treaty obligations can be monitored, and that cheating is not only discouraged but also caught, especially in later years. My concerns were reinforced during every hearing to this point when it was fully disclosed that the Russians have violated every agreement we have ever had with them. Your response to Senator McCain's questions on this topic during our hearing did little to assuage my concerns. Why have you not provided Congress with any information on Russian compliance or noncompliance with any of our previous treaties?

Secretary GOTTEMOELLER. On July 1, 2010, the administration provided to the Senate a comprehensive report on the Adherence to and Compliance with Arms Control Nonproliferation, and Disarmament Agreements and Commitments. The report covered the period from January 2004 through December 2008 with an update for 2009. The Report addressed Russian compliance with the START treaty. In April 2010, the administration submitted its annual report on Russia's implementation of the Moscow Treaty.

43. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, what are the Russian violations of arms control agreements?

Secretary GOTTEMOELLER and Dr. WARNER. [Deleted.]

44. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, what is being done to ensure that we can catch Russian violations of agreements?

Secretary GOTTEMOELLER and Dr. WARNER. The New START treaty verification regime ensures that the United States would be aware of militarily significant violations of the treaty by Russia in time to respond appropriately, and will also provide insights that would help us detect troubling patterns of marginal violations.

45. Senator INHOFE. Secretary Gottemoeller, what is our recourse if we determine there are violations of an arms control treaty, beyond a statement of concern or executive-level discussion?

Secretary GOTTEMOELLER and Dr. WARNER. Although the New START treaty is less complex than the START treaty, different interpretations by the Parties might arise regarding how to implement the inspection activities and other verification provisions of the New START treaty. Should such a situation arise, the Parties will seek to resolve their differences in the treaty's BCC. If necessary, we would take an issue to a higher political level to resolve.

The New START treaty verification regime ensures that the United States would be aware of militarily significant violations of the treaty by Russia in time to respond appropriately, and will also provide insights that would help us detect troubling patterns of marginal violations.

Any cheating in relation to this treaty would be deemed politically significant, due to what such cheating would indicate regarding Russia's intent, and its perception of U.S.-Russia bilateral relations.

The United States could respond in a variety of ways to Russian cheating or breakout. Depending on the nature and extent of Russian cheating or breakout, the U.S. responses could range from raising the issue in diplomatic channels, to changing the posture of U.S. strategic forces (e.g. by increasing alert levels), to exercising our right to withdraw from the treaty, to increasing the size of deployed U.S. strategic forces by uploading additional warheads on SLBMs, ICBMs, and/or heavy bombers.

46. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, why does the New START only have 18 inspections per year, or 180 inspections in 10 years when, dur-

ing START I, we conducted on the order of 600 inspections during the 15 years of START I?

Secretary GOTTEMOELLER and Dr. WARNER. Although it is true that the New START treaty provides for fewer inspections in a given year—18, rather than the annual quota of 28 permitted under the START treaty—the number of facilities for which Russia provided site diagrams and will therefore be subject to inspection is 35, substantially lower than the 70 facilities belonging to the four successor states to the former Soviet Union that were subject to inspection at entry into force of the START treaty. There are fewer facilities primarily because Belarus, Kazakhstan, and Ukraine no longer have strategic offensive arms and therefore are not parties to the New START treaty, and because Russia has eliminated or consolidated a number of facilities where strategic offensive arms had been located and had been subject to inspection under START. Thus, there are fewer facilities that we need to inspect, and we need fewer inspections to achieve a comparable level of oversight. In addition, Type One inspections combine many of the aspects associated with two different types of inspections that were conducted separately under the START treaty; specifically, reentry vehicle onsite inspections and data update inspections. Thus, we can achieve many of the results of the previous START treaty inspection regime with a smaller number of annual inspections.

The U.S. Government assessed the number of Type One and Type Two inspections needed annually to meet U.S. inspection objectives as the nature of these inspection types emerged during the New START negotiations. These assessments ultimately concluded that an annual quota of 18 such inspections would be adequate to meet U.S. inspection needs.

47. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, why does New START eliminate continuous monitoring of mobile ICBM production, reduce data exchanges and notifications, weaken telemetry exchanges to only five flights per year, and allow the Russians to pick which ones they share, and eliminate cooperative measures?

Secretary GOTTEMOELLER and Dr. WARNER. The New START verification provisions are tailored to verify the requirements of the New START treaty, which are different from the START treaty requirements.

Continuous perimeter and portal monitoring at the Votkinsk Production Facility began as part of the INF Treaty and was one of the verification measures used to monitor mobile ICBM production under the START treaty. During the last administration, the United States and Russia agreed that neither side wanted to extend the START treaty. Preparations for ending the monitoring at Votkinsk began in 2008 so that the United States would be able to depart in an orderly way when the START treaty expired on December 5, 2009.

The New START treaty contains a new, simplified provision to track and account for new solid-fueled ICBMs and SLBMs exiting the production facility at Votkinsk. The New START treaty specifically requires Russia to notify the United States 48 hours in advance every time a solid-fueled ICBM or SLBM is scheduled to leave its production facility. The United States agreed to provide this same notification regarding the exit of any solid-fueled ICBM or SLBM from its production facility. Like the START treaty, the New START treaty also requires that each side notify the other of completion of a missile's transit and of its new location. These provisions will facilitate monitoring through national technical means of verification. In addition, the New START treaty requires the application of unique alpha-numeric identifiers on all ICBMs and SLBMs as well as heavy bombers to help track and account for them from the time they are produced until they are eventually eliminated or converted, or otherwise removed from accountability.

Regarding on telemetry, the START treaty had limits, prohibitions, and obligations that required the analysis of telemetric information to ensure that a Party was complying with the treaty. Under the New START treaty, there are no obligations, prohibitions, or limitations that require the analysis of telemetric information in order to verify a Party's compliance with the treaty. For instance, the treaty does not limit the development of new types of missiles, so there is no requirement to determine the technical characteristics of new missiles such as their launch weight or throw-weight in order to distinguish them from existing types.

Nevertheless, to promote transparency and predictability, the Parties agreed to allow for the exchange of telemetric information on an agreed equal number (up to five annually) of launches of ICBMs and SLBMs, with the testing Party deciding the launches on which it will exchange information. The specifics of the annual telemetry exchanges will be worked out in the treaty's implementation body, the BCC.

Cooperative measures, under which heavy bombers or mobile launchers of ICBMs were, upon request, placed in the open for viewing by national technical means of

verification, are not required by the New START treaty. During the development of the New START treaty's verification regime, the U.S. and Russia decided not to retain cooperative measures under New START. The New START treaty's verification regime, which includes onsite inspections, a comprehensive database, a wide range of notifications, and unique identifiers, is designed to permit verification of each Party's compliance with the treaty's provisions, including the three central numerical limits contained in Article II of the treaty.

In light of the end of the Cold War and building upon the extensive START treaty implementation experience, the obligations and prohibitions of the New START treaty are fewer and less complicated than those of the START treaty. Accordingly, the verification provisions are simpler and less costly to implement than those in START, but will ensure effective verification of the New START treaty.

48. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, why have short-notice verification inspections been eliminated?

Secretary GOTTEMOELLER and Dr. WARNER. Short-notice verification inspections have not been eliminated. The New START treaty provides for the conduct of up to 18 short-notice, onsite inspections each year to aid in verifying each Party's compliance with its treaty obligations. These inspections have specific provisions to provide each Party with 18 opportunities per year to select from among declared strategic forces facilities of the other Party to verify the accuracy of data declarations and deter cheating.

49. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, why have mobile launchers of ICBMs located at a maintenance facility been designated as non-inspectable items under the New START? This seems to me to have the potential to exempt a portion of, and even the entire, mobile ICBM force from inspections.

Secretary GOTTEMOELLER and Dr. WARNER. Mobile launchers of ICBMs located at a maintenance facility are inspectable items under the New START treaty. If an ICBM base for mobile launchers of ICBMs is designated by a U.S. inspection team for a Type One inspection, during the pre-inspection briefing Russia will provide U.S. inspectors with a site diagram of the ICBM base that will depict the locations of all deployed and nondeployed road-mobile ICBM systems located at the base at the time. The site diagram will also specify the boundaries of the maintenance facility, which is an inspectable part of the ICBM base. All deployed and nondeployed mobile ICBMs or ICBM mobile launchers located at the maintenance facility when the inspection team arrives at the base are subject to inspection in order to confirm the accuracy of the data on numbers and types of declared launchers and ICBMs that were provided to inspectors during the pre-inspection briefing.

A mobile launcher of ICBMs located at a maintenance facility may not, however, be designated for inspection to confirm the number of reentry vehicles emplaced on a deployed ICBM contained on such a mobile launcher of ICBMs. This is analogous to the practice for reentry vehicle onsite inspections under the START treaty.

50. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, why do New START procedures regarding the elimination of delivery vehicles not require inspectors present during final stages of elimination and only require inspectors to observe debris of only half the missiles subject to New START protocols?

Secretary GOTTEMOELLER and Dr. WARNER. The standard for elimination of strategic offensive arms under the New START treaty requires that they be rendered inoperable, precluding their use for their original purpose. It should be noted this is a uniform standard, applied equally to all accountable strategic offensive arms. With regard to solid-fueled ICBM, solid-fueled SLBM, and mobile ICBM launcher eliminations, the "accumulation rules" set forth in Part Five of the Protocol provide convenient opportunities to observe the results of significant numbers of eliminated items during a single inspection. Unique identifiers also will assist in accounting for eliminated ICBMs and SLBMs.

The verifiability assessment of the New START treaty is conveyed in the State Department's classified Section 306 report, which addresses the determinations of the U.S. Government as to the degree to which the limits of the New START treaty, including the elimination provisions, can be verified. The Section 306 report was published on July 12, 2010, and has been provided to the Senate.

DETERRENCE

51. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, the cornerstone of our national defense has been our ability to maintain our nuclear arsenal in order

to deter attacks on our Nation and over 30 international allies that are protected by our nuclear umbrella. I firmly believe that deterrence reduces proliferation by their continued reliance on our nuclear deterrent rather than to develop their own, and deters our enemies from using weapons of mass destruction against our country or our allies. Secretary Gates stated back in October 2008, "As long as others have nuclear weapons, we must maintain some level of these weapons ourselves to deter potential adversaries and to reassure over two dozen allies and partners who rely on our nuclear umbrella for their security, making it unnecessary for them to develop their own." New START focuses on reducing the strategic nuclear arsenals of Russia and the United States and fails to address proliferation of nuclear weapons in other countries, the large number of tactical nuclear weapons and the increased threat of a nuclear terrorist attack. How does New START ensure that our nuclear capabilities continue to offer enough deterrence against our potential threats?

Secretary GOTTEMOELLER and Dr. WARNER. The NPR analysis and deliberations concluded that the limits contained in the New START treaty would be sufficient to support our deterrence requirements, including extended deterrence for our allies and partners, in the current and projected international security environment. Specifically, the NPR determined that the United States should retain a nuclear triad and determined the appropriate number of strategic delivery vehicles based on four requirements:

(1) supporting strategic stability through maintenance of an assured second-strike capability that is able to meet the national nuclear deterrence guidance;
(2) retaining sufficient force structure in each leg to allow the ability to hedge effectively by shifting weapons capabilities from one triad leg to another, if necessary, due to unexpected technological problems or operational vulnerabilities;
(3) retaining a delivery capability margin above the minimum-required nuclear force structure for the possible addition of non-nuclear, prompt-global strike capabilities that would be accountable within the treaty limits; and
(4) providing the basis for maintaining the needed strategic offensive capabilities over the next several decades or more, including retaining a sufficient cadre of trained military and civilian personnel and adequate infrastructure to support the strategic nuclear deterrence mission.

The NPR clearly attests to the commitment of the executive branch to sustain an effective nuclear deterrent for the long term—and New START preserves our ability to do so. The inclusion in the New START treaty of the definitions of "deployed" and "nondeployed" ICBMs and SLBMs as well as provisions for excluding conventional—only B–1B bombers and U.S. SSGN submarines from accountability against treaty limits, the converting of individual SLBM launch tubes on U.S. SSBNs, and the converting of a subset of the B–52H fleet to a conventional-only capability, all contribute to the U.S. ability to sustain a robust nuclear triad under the New START treaty's central limits.

52. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, how does New START protect us against the threat of nuclear terrorism and proliferation?

Secretary GOTTEMOELLER and Dr. WARNER. The New START treaty is just one element of a comprehensive strategy to implement the President's nuclear security agenda. The New START treaty mandates lower limits on deployed strategic warheads and delivery vehicles in the U.S. and Russian arsenals.

Our renewed focus on improving our relations with Russia, including the negotiations on the New START treaty, has led to a greater understanding and increased cooperation between the United States and Russia in a number of areas, including in working toward the President's goal of securing all vulnerable nuclear materials worldwide. Enhanced cooperation between the United States and Russia in the nuclear arena contributes to the positive international environment needed to reinforce programs to secure and safeguard nuclear material stockpiles worldwide, and to strengthen the NPT. More generally, improved U.S.-Russian relations help in achieving critical U.S. foreign policy objectives related to U.S. security, including efforts to address the nuclear programs of Iran and North Korea.

The New START treaty positions the United States to continue its international leadership role in advancing the goals of the NPT regime. The conclusion of the New START treaty with Russia strengthened the U.S. position during the NPT Review Conference in May 2010, and helped aid our efforts to conclude a consensus final document, which did not occur at the previous Review Conference in 2005. The New START treaty set the stage for engaging other nuclear powers in fulfilling the goals of the NPT, and expanding opportunities for enhancing strategic stability.

Together with DOE nonproliferation programs, the Nunn-Lugar Cooperative Threat Reduction (CTR) Program has contributed to the upgrading of physical security systems at Russia's nuclear weapons storage sites, as well as provided training facilities for guard forces, equipped an emergency response force, and helped the Russian Ministry of Defense to establish a personnel reliability program. In tandem with the eliminations under the New START treaty, these past and continuing efforts will support the objective of keeping nuclear weapons and delivery systems out of the hands of terrorists.

53. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, is the U.S. force capable of carrying out our deterrence and extended deterrence missions now and in the future, based on Russian strategies and development plans?

Secretary GOTTEMOELLER and Dr. WARNER. Yes. Strategic force analysis and deliberations that occurred during the NPR concluded that U.S. strategic forces fielded at the limits contained in the New START treaty would be sufficient to support U.S. deterrence requirements, including extended deterrence for our allies and partners, in the current and projected international security environments.

54. Senator INHOFE. Secretary Gottemoeller and Dr. Warner, how does New START ensure that all existing nuclear weapons remain secure?

Secretary GOTTEMOELLER and Dr. WARNER. Our renewed focus on improving our relations with Russia, including the negotiations on the New START treaty, has led to a greater understanding and increased cooperation between the United States and Russia in a number of areas, including toward the President's goal of securing all vulnerable nuclear materials worldwide. This renewed relationship is a key factor as we work toward curbing nuclear threats around the globe. The New START treaty demonstrates the continuing commitment of the United States and Russia to reduce our respective nuclear arsenals consistent with obligations under the NPT. Enhanced cooperation between the United States and Russia in the nuclear arena will contribute to the positive international environment needed to reinforce programs to secure and safeguard nuclear material stockpiles worldwide, and to strengthen the NPT.

Clearly, the responsibility for Russia's implementation of the New START treaty and for maintaining the security of its nuclear weapons will belong to the Government of the Russian Federation. Nevertheless, the U.S. CTR program, in concert with the nonproliferation programs of the DOE, has historically played a very significant role in assisting the Russian government in securing Russian nuclear weapons and stocks of fissile materials. The role of these programs will be, as it was throughout the implementation of the START treaty, to incentivize the Russian Government to continue the excellent cooperation it has had with the United States in eliminating Russian strategic delivery systems and in enhancing the security of its nuclear weapons storage and transportation.

QUESTIONS SUBMITTED BY SENATOR DAVID VITTER

VEHICLE AND WARHEAD LIMITS

55. Senator VITTER. Dr. Warner, do you believe that the levels set forth by the New START are enough of a deterrent to maintain the levels of security that the U.S. currently has with its arsenal, given the rising number of nuclear states?

Dr. WARNER. Yes. The United States, and our allies and partners, will not assume any additional security risk due to the fact that the United States would reduce its strategic nuclear forces to comply with the limits of the New START treaty. The 2010 NPR concluded that the United States could sustain stable deterrence with Russia and meet its deterrence requirements vis-à-vis other potential adversaries with significantly fewer deployed strategic nuclear warheads and lower limits on deployed as well as nondeployed U.S. strategic delivery vehicles (SDVs). Mindful of the NPR analysis, the United States agreed with the Russian Federation to limits of 1,550 strategic warheads, 700 deployed SDVs, and 800 deployed and nondeployed ICBM and SLBM launchers and nuclear-capable heavy bombers. The United States agreed to these limits only after DOD validated, through rigorous analysis conducted during the NPR, that a U.S. strategic force fielded within these limits, as defined in the treaty, could meet the full range of objectives desired for the U.S. nuclear deterrent.

56. Senator VITTER. Dr. Warner, under the New START, the U.S. and Russian deployment delivery vehicles are limited to 700 and nuclear warheads to 1,550.

What concessions were given, since Russia is already below the 700 level, and they are only required to stay below these levels?

Dr. WARNER. The decision to agree to a limit of 700 deployed strategic delivery vehicles did not result from a change in the security environment or any concessions to the Russia side, but from an assessment of U.S. requirements conducted in the 2010 NPR, and force deployment options in the light of key elements of the New START treaty that emerged in the course of the negotiations. The relevant elements that helped make a limit of 700 deployed strategic delivery vehicles acceptable included:

- The definitional difference between deployed and nondeployed ICBM and SLBM launchers: This will allow the United States to count the SLBM launchers on two SSBNs, which will be in extended overhaul during most of the treaty, as nondeployed rather than deployed strategic delivery vehicles (SDVs).
- The agreement to the right to convert individual SLBM launchers on SSBNs: We plan to convert four tubes on each of our 14 SSBNs in this manner so that those launchers will not be counted against the treaty limits.
- Provisions for the conversion of heavy bombers to conventional-only capability: This provision will remove all of the converted B–1Bs and some B–52Hs from accountability under the treaty limits.

Once these provisions were agreed, it became clear that we could sustain a strong nuclear triad and meet deterrence and hedging requirements within a limit of 700 deployed ICBMs, deployed SLBMs, and deployed heavy bombers.

57. Senator VITTER. Dr. Warner, did we concede important deployment capabilities in order to come to the number of delivery vehicles and warheads required by the New START?

Dr. WARNER. No. The treaty allows the United States to retain and deploy a strong nuclear triad and does not constrain important conventional capabilities (including conventional prompt global strike) or missile defenses. As stipulated in the report submitted with the New START treaty pursuant to section 1251 of the NDAA for Fiscal Year 2010, the United States will pursue a future force structure under the New START treaty that will preserve adequate flexibility, including possible accountable conventional prompt global strike systems currently under study by DOD. In addition, NPR analysis concluded that New START treaty strategic delivery vehicle and warhead limits will allow retention of a margin above the minimum required nuclear force structure for the possible addition of non-nuclear prompt global strike capabilities—conventionally-armed ICBMs or SLBMs—that would be accountable under the treaty.

58. Senator VITTER. Secretary Gottemoeller, do you believe that the reductions in New START will incite other nuclear nations to increase their arsenals to attempt to achieve parity with the United States or Russia?

Secretary GOTTEMOELLER. No. The only nation that could potentially compete with the United States or Russia in the size of its nuclear weapons arsenal is China. The New START treaty limits will permit the United States to maintain forces well above China's. Chinese spokesmen have stated that China does not seek to attain numerical parity with Russia or the United States, and China's nuclear arsenal remains much smaller than the U.S. and Russian arsenals. As a declared nuclear weapon state under the NPT, China's restraint in its nuclear modernization is important to nuclear disarmament and global nonproliferation efforts. We look to China to be more transparent about its strategic programs and to show restraint in them.

TACTICAL NUCLEAR WEAPONS

59. Senator VITTER. Secretary Gottemoeller, have any of our allies expressed any concerns to DOS about the New START and its failure to address tactical nuclear weapons?

Secretary GOTTEMOELLER. No. Allies have not expressed concerns with the New START treaty. To the contrary, the response from our allies to the conclusion of the New START treaty has been overwhelmingly positive, with many seeing it as an important step forward in global nonproliferation efforts. For example, on behalf of NATO allies, NATO Secretary General Anders Fogh Rasmussen welcomed the agreement as an important contribution to arms control and an inspiration for further progress.

With regard to nonstrategic/tactical nuclear weapons, during consultations throughout the development of the 2010 NPR and since the release of the NPR report and the signing of the New START treaty, allies have told us they are comfortable with our planned nuclear force posture, which is consistent with NPR recommendations and the New START treaty. More recently, at Tallinn in their initial discussions on the role of nuclear weapons in NATO, allied foreign ministers welcomed the principle of including nonstrategic/tactical nuclear weapons in any future U.S.-Russian arms control talks.

60. Senator VITTER. Secretary Gottemoeller, why were tactical nuclear weapons not addressed in New START?

Secretary GOTTEMOELLER. From the outset, the New START treaty was intended to replace the START treaty, which was about strategic offensive forces. The desire to conclude the New START treaty quickly in light of the pending expiration of the START treaty, combined with the need to consult closely with our allies before addressing nonstrategic/tactical nuclear weapons, did not support broadening the scope of the New START treaty to address tactical nuclear weapons. Furthermore, because of their limited range and very different roles, the vast majority of nonstrategic/tactical nuclear weapons do not directly influence the strategic balance between the United States and Russia. Deferring negotiations on tactical nuclear weapons until after a START treaty successor agreement had been concluded was also the recommendation of the Perry-Schlesinger Congressional Strategic Posture Commission. We intend to raise strategic and nonstrategic/tactical nuclear weapons, including nondeployed nuclear weapons, in future nuclear arms reduction discussions with Russia.

61. Senator VITTER. Secretary Gottemoeller, according to DOS, Russia is able to cheat on the New START. The treaty also failed to address tactical nuclear weapons, and a new follow on treaty is needed to address the issue of tactical nuclear weapons. If Russia is allowed to cheat on the New START, what will deter them from doing so in a follow-on treaty that deals with tactical nuclear weapons?

Secretary GOTTEMOELLER. The United States would view any deliberate effort by Russia to exceed the New START treaty's limits or circumvent its verification regime with great concern. The United States takes very seriously the prospect of cheating. Should the United States find that Russia was cheating with respect to the New START treaty, the executive branch would immediately raise this matter through diplomatic channels, and if not resolved, raise it promptly to higher levels. We would also keep the Senate informed. No treaty or agreement can prevent cheating; but as was the case under the START treaty, onsite inspections and other elements of the treaty's verification regime will allow the Parties to confirm the declared numbers of missiles, mobile launchers, and deployed warheads on a spot-check basis, thereby helping to detect and deter cheating.

[Whereupon, at 11:49 a.m., the committee adjourned.]

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