DARYL KIMBALL: Good morning, everyone. We are here this morning for our briefing on next steps in
U.S.-Russian nuclear arms reductions. I am the executive director of the Arms Control Association. And as most of you know, ACA is a non-partisan membership organization established to provide information and advice on practical policy solutions to deal with the world's most dangerous weapons. And we will be talking about some of the world's most dangerous weapons today, the U.S. and Russian nuclear arsenals.

We have three expert panelists who are going to discuss issues relating to the Strategic Arms Reduction Treaty follow-on process, which formally began this past Friday in Rome. And before I introduce our panelists and they deliver their presentations and we take your questions and answers, I want to set the context for this discussion just a little bit because we are talking about the follow on to a treaty that is nearly 20 years old.

So that introduction must begin with a reminder about the value of START itself, which was concluded in 1991. If you look back at the headlines at the time, it was seen as a breakthrough agreement that helped bring about the end of the Cold War. It slashed U.S. and Russian nuclear forces from approximately 10,000 strategic warheads each to no more than 6,000 START-accountable warheads apiece by December 5, 2001. And the accord also limits each side to 1,600 strategic-delivery vehicles. You will hear that term quite a bit today. Those are the long-range missiles on subs and on land, and heavy bombers.

And just as importantly, START established a far-reaching system of notifications, inspections and information exchanges that provide an accurate assessment of the size and location of each country's nuclear forces. And that is the basis for, in many ways, all the information that we have about the two countries' strategic arsenals.

Now, since 1991, the U.S. and Russian leaders have missed opportunities to implement additional agreements, START II, START III and the Strategic Offensive Reductions Treaty of 2002, to achieve deeper, irreversible and verifiable cuts in their nuclear and missile stockpiles. And as a result, today we have nuclear weapons arsenals and doctrines and capabilities that remain largely the same as they were at the end of the Cold War, and mutual suspicions linger.

Even though both sides surpassed START's numerical ceilings years ago, START still provides valuable predictability and transparency, which is all the more important given that the SORT Treaty, the Strategic Offensive Reductions Treaty, which calls for no more than 2200 strategic deployed warheads by December 2012, expires. The SORT Treaty expires the same day the treaty limits take effect. And that treaty provides no additional verification provisions.

U.S. and Russian experts began discussions on a START follow-on in March 2007. But they made little progress by the end of last year. At their inaugural meeting on April 1 of this year, President Barack Obama and President Dmitry Medvedev committed their governments to negotiate a new and far-reaching nuclear arms reduction treaty to replace START by the end of this year. They called on their teams to report on progress by the time they meet next, which will be July 5 and 6 in Moscow.

If a new treaty is not concluded, and the 1991 START agreement is allowed to expire as scheduled on December 5-15 years after it was concluded-there will be effectively no limits on the two countries' still bloated nuclear stockpiles. And the loss of START would add yet another dangerous irritant to already strained U.S.-Russian relations.

In addition, as President Obama noted in his stirring Prague speech on April 5, a new START agreement has additional value, as one of the immediate concrete steps towards a world without nuclear weapons, which is vital in the context of building support for additional measures to strengthen the Nuclear Non-Proliferation Treaty, which is up for review at the May 2010 NPT review conference next year.

The Arms Control Association, for many years, has advocated that the United States and Russia can and should reduce their total strategic nuclear warhead holdings, even lower than under START, even lower than under SORT - in our view, to 1,000 or below within the next few years. Two decades after the end of the Cold War, in our view, there is simply no practical justification for U.S. and Russian leaders to maintain thousands of strategic weapons, many of which are on high alert.
Besides the United States and Russia, no state possesses more than about 300 nuclear warheads.

So for these reasons and others, we believe that the new agreement - a new agreement, one that achieves substantially deeper reductions in nuclear warheads and delivery systems based on proven START-style verification mechanisms is overwhelmingly in the interest of the United States and Russia.

Even though there are overwhelming reasons for the two governments to conclude a new treaty, it is going to be challenging to conclude it by the end of the year. There are going to be a number of complicating issues. We are going to explore many of those. And of course, there is the very tight negotiating timeline that we have to deal with.

So today we have got, I think, three of the best speakers around to talk about key issues relating to the START follow-on. We are going to hear from them about the nature, size and composition of U.S. and Russian nuclear arsenals. We are going to hear about the key issues and challenges that START follow-on negotiators will face, how they might resolve those issues. And finally, we are going to hear more about the importance of START verification tools that might be used in the new agreement.

First we are going to hear from Hans Kristensen, who many of you know. He is the director of the Nuclear Information Project at the Federal of American Scientists and the co-author of "The Nuclear Notebook" column published in The Bulletin of the Atomic Scientists, which is the leading independent source of information on global nuclear stockpiles.

Then we are going to hear from one of, if not the leading authorities on the Strategic Arms Reduction Treaty, Ambassador Linton Brooks, who was just joking a few minutes ago that at one point, he had memorized the entire START Treaty and the annexes in this slim volume that is over by Greg. So he is quite knowledgeable about this subject. He most recently served as the administrator of the National Nuclear Security Administration under the Bush administration.

Finally, we will hear more about START verification issues from Greg Thielmann, who is a senior fellow with the Arms Control Association. He joined us this spring. He is the director of our new Realistic Threats and Policy Responses Project. Prior to joining ACA, Greg was a professional staff member of the Senate Select Committee on Intelligence, and prior to that, he was U.S. Foreign Service officer for 25 years, last serving as the director of strategic proliferation and military affairs office in the State Department's Bureau of Intelligence Research, also known as INR. And Greg is just back from Moscow, where he was for a meeting on the subject of START and nuclear nonproliferation.

So with that introduction, I am going to turn it over to Hans Kristensen. And after each of the speaker's remarks, we are going to take your questions and have a thorough discussion, I am sure. Hans?

HANS KRISTENSEN: Thanks, Daryl. I hope everybody can hear me. I turned on this machine here. We will see what happens.

Yeah, Daryl asked me to do a brief, sort of, where we are, where we came from, those bigger issues and on the numbers of weapons and delivery platforms and warheads. Of course, at the outset here, I am saying that all of these things are classified, so this is the outside looking in, the little we can, sort of, gauge from numbers that have carefully been released or leaked or whatever from time to time. And the numbers that I have cranked here are based on research that I have done over many years together with Robert Norris and Stan Cochran at NRDC, who have spent more time than most people looking at this stuff.

This first slide is to illustrate, of course, where we come from - an enormous overhang from the Cold War, enormous amounts of weapons. And it is funny going through these numbers again because it really dawns on me every time how wacko the Cold War was and the extent to which we just armed ourselves to the teeth on both sides. And of course we can get down to details about who started and who followed and who was better and the other. But the bottom line is that the world ended up with something in the order of 70,000 nuclear weapons that would have blown everybody to
But it is very interesting how the stockpiles peaked at different levels at different periods. And the United States peaked very early on relatively in the '60s, and has been pretty much going down every since - slight leveling out there in the 1980s. Russia peaked much later and went just whole hog to an enormous amount of weapons and has been coming down rapidly ever since.

And right now both countries have inventories - and I say inventories, not stockpiles, but inventories of weapons that are somewhere around 10,000. United States has formally gone to a stockpile, a DOD nuclear weapons stockpile that is something in the order of 5,200 warheads right now. But it has a huge backlog of weapons that it is trying to get rid of. But out at Pantex, they are busy doing other things. They are scheduled to overhaul or life extent the warheads. That has been their priority. And so the dismantlement process is going a little slow. And so the backlog of current U.S. weapons that have been actually moved out of the DOD stockpile is not going to be completed until about 2022.

Russia, we really don't know. I am going to take you into this chart here and give you an example of where our estimates are for the weapons so far. I have a number of the Russian numbers in parentheses because really there is no solid information on this about how much they have in reserve, what their military stockpile consists of. It is not necessarily structured in the same way as ours - not to mention how many other weapons they have that are actually lined up for dismantlement versus being in a reserve. We just really don't know. They don't say and our intelligence community doesn't tell. And so we are really stuck with these types of estimates.

But what is given is that as they go down, more and more weapons are expected to disappear into the reserve in one shape or form in the future. So this issue of trying to bring some clarity on both sides about how many weapons do they actually have in storage is going to be increasingly important.

Briefly, the way that both countries developed and deployed their strategic delivery vehicles and that those are ballistic missiles and long-range bombers. I applauded that over the years here and again, you can see how the two countries did this very differently from the start, you know, as the United States coming in very early with a huge number of delivery vehicles on long-range bombers. And the bombers never really got off to some big deal on the Russian side or the Soviet side. They would focus mainly on ICBMs and sea-launched ballistic missiles.

But as you can see, things are rapidly declining on the Russian side now. And we are heading toward an inventory of strategic delivery vehicles that is going to go below 500 without a treaty, without any formalized arms control agreement. The United States somewhat stabilized, if you will. Of course, there are probably going to be cuts as part of the next nuclear posture review with or without an arms control agreement with the Russians. But that is at least the numbers that we can sort of predict now.

On the warhead distribution, it is also interesting to see that on the U.S. side, the focus was really not on the ICBM force, although it has certainly been built up to be a very capable force. Most warheads ended up at sea. And the bomber force had a huge share of this until relatively recently and has really been declining rapidly ever since.

On the Russian side, they focused early very much on ICBMs. That is where most of their warheads went. But because of the way their ICBM force is developing, they are moving toward much lower numbers on the ICBM force in the future, even with the introduction of multiple warhead ballistic missile systems.

If you look at the - just looking at the Russian projection here if you count from today, again these are numbers that are based on assumptions about what the Russians have said, what we think it means what they say, that type of stuff. There are no, sort of, formal numbers that are handed out. But they do give a few hints here and there about what they intend to deploy in terms of land-based ICBMs and how many submarines they want to build. And so this is taking that into assumption and showing that even today if you go beyond 2012, they will continue to drop a little in delivery
vehicles, whereas the warheads will somewhat remain leveled after 2012 because of their introduction of new ICBM system with multiple warheads and on replacement of some systems at sea with new systems that have more capability for warheads.

The problem, of course, is on the Russian side that their numbers, to the extent we can say, are really based on START numbers and they are not accurate. They are counting what the country declares that this weapon system can carry as a maximum. But that is not necessarily what they deploy on the force. We know that from our side. You know - (inaudible) - ICBMs are counted with three warheads, but we don't deploy three warheads on most of the ICBM force. The same thing, the D-5 submarines are counted with eight warheads. But they are not carrying eight warheads. So these numbers really have to be reworked as part of this next round of agreements.

So briefly to come up with some thoughts about what could be done, how the countries could address these issues on an agreement. I think the main thing is here that both countries' strategic warhead levels are relatively similar for this 2010-2020 period, which is a good indication, I think, for the possibility of making some formal agreement about how to limit; curtail, go to lower numbers, et cetera.

But the U.S., in particular, has a large ICBM force. Russia is going to much lower numbers in terms of delivery vehicles. And the U.S. could go to lower ICBM numbers to meet the Russian force more directly, especially if the Russians agree to reinstating this - (inaudible) - agreement that we had in the START II agreement. There was an agreement on the START II agreement, which was later abandoned - to abandon all - to transform all ICBMs to single-warhead systems.

We moved far in that direction and today have most of our ICBMs just with a single warhead. There are a few left that still have multiple, but it is not going to be a lot in the future. The Russians are really moving in the other direction. They have obviously large warhead systems. This is 18 and this 19, but they are going to be phased out at the end of the next decade. And so they have to transition to new systems and all of them seem to be heading toward a posture where they will have multiple warheads on them.

So somehow the two sides have to agree to some form of common vision about what the ICBM force, it seems to me, has to move toward. I am also raising here the issue of addressing the question of multiple warheads on the ballistic missile submarines. That issue was essentially left out of the START agreements. There is no limitation on there, and there probably should be, especially because of the capability that sea-based ballistic systems today have. The U.S. D-5 system is a very capable system. It is not, sort of, a benign, if you will, retaliatory capability like we had sea-based systems in the 1960s. This is a front-line weapon system that is very capable.

So if we want to move to a policy where we relax the - (inaudible) - relax the - (inaudible) - on other sides and what our postures make them do, so to speak, or make their weaponeers argue for, that would be one way to hopefully ease a little up. And, of course, this issue, Russia has to or can reduce its bomber weapons' share significantly. And again, we come back to the issue of START numbers. We don't know how many weapons they have allocated to the bomber force. We only know what the START agreement really says. And so there is a lot of uncertainty about that. But right now there is as huge inventory of weapons that are assigned to their even small bomber force because of those - (inaudible) - rules. What the reality - that would be good to get some clarity on.

And then I will just end up saying that - underscore that these numbers come from START memorandum of understanding that is released twice a year, which is a hugely important document that allows us to see something about what the countries are doing. The SORT agreement, the annual implementation document, as well, since 2006, the United States has declassified its number of operationally deployed strategic warheads. That is hugely important. And we don't know about the Russian situation. But that would be an area where they could really help by providing some similar openness about their force structuring.

And then of course, the question of the total inventory as a weapon from both sides - I think it is enormously important that they, in some shape or form, declare what they have to give a picture about the inventories they have, and especially here on the Russian side. It is enormously important.
But for both countries because they are heading toward postures where more weapons will be in reserve compared to how many are operationally deployed.

And then finally, please get the tactical nuclear weapons involved in some shape or form. In Russia, we are heading toward a posture where Russia will have more tactical nuclear weapons than strategic weapons in the future. And we don't know where they are heading with it, how many they have, et cetera, et cetera. But that is sort of the best we can count so far. So it is enormously important that that issue is being tackled in some shape or form down the line. Thank you.

MR. KIMBALL: Thank you very much, Hans. Ambassador Brooks, you are next.

AMBASSADOR LINTON BROOKS: There are a number of interesting ideas on the slide before you. Some of them there is an alternate point of view on. We can get to that in the discussion. But what I want you to focus on now is nothing on that slide is going to be in the treaty that is negotiated this year because any attempt to put anything like that in the treaty will guarantee it won't be negotiated this year. And keep that thought about negotiated this year in mind.

I got asked to do a couple of things. I got asked to talk about, you know, why do we care? Now, anything sponsored by the Arms Control Association, you sort of know we care. But the question is why. And I would argue that from inside the government, if you look back at the treaty that we did in '91, there were a number of things we were trying to do, and they were important then, and they don't - some of them don't matter as much now. So we sought to stabilize the arms race by at least making it predictable and making it slower - (inaudible) - arms race. We thought to provide crisis stability by reducing incentives to preempt in time of crisis - weren't very successful then; probably not a very important topic right now. We sought to save money by not building new systems. We are not building new systems.

And so those reasons are probably less salient for a treaty. But then we sought to do a couple of other things that are still important. One is we sought to provide transparency and predictability. Hans points out how little we know about each other, but much of what we know about each other, particularly at the official level, comes from the START treaty, so that is still valuable.

And finally, we sought to improve the overall political relationship. It is important to remember that during the '80s, about the only thing we talked to the Soviets with any seriousness about was arms control. It was the door that let us get through for other discussions. And that is still important.

So it seems to me that the two sort of traditional reasons for moving to this treaty are transparency and predictability and then the overall political relationship. But there are a couple of new reasons that didn't play any meaningful role, I think, in our thinking during the negotiation START I. One Daryl has already mentioned is there is going to be a review conference for the nonproliferation treaty next year. United States has a number of things it would like to see come out of that review conference. It has no chance of seeing those things come out unless it is once again perceived as the leader in the international legal efforts on nonproliferation and disarmament. And so concluding a START treaty is one step toward restoring that leadership.

And finally, as Daryl knows, I am somewhat of a skeptic about abolition. But it is the policy of the United States to seek it. And obviously, the next step on any conceivable path to abolition is a substantial reduction in the arsenals of the United States and the Russian Federation. So those two reasons - the path to abolition and reasserting our moral authority in the international nonproliferation community - are really reasons that didn't play much of a role in 1991. But I think they are important now.

Now, what do we know about the new treaty? Well, we know what the two presidents said on April 1st. Most diplomatic communiqués are as boring to write as they are to read. (Laughter.) But every once in a while, there is one that is worth looking at carefully because it actually tells you something. And what the joint statement issued in London tells you are several things. First, it tells you they intend to conclude this treaty - this agreement before the current treaty expires in December. I will talk in a minute about why that is an extremely daunting task.
And then it appears, at least, that their statement makes three important limitations on the new treaty. First, quote, "the subject of the new agreement will be the reduction and limitation of strategic offensive arms," close quote. Now, that means ballistic missile defense is off the table, something the Russians would prefer to have on the table. That means Russian tactical nuclear warheads are off the table, something the United States might prefer to have on the table. In another statement issued the same day, there is sort of - (inaudible) - agreement that we are going to discuss those two topics. But there doesn't appear to be any linkage to the conclusion of a treaty this year.

Secondly, quote, "The parties will seek reductions in strategic offensive arms that will be lower than those in the 2002 Moscow Treaty on Strategy Offensive Reductions" - SORT treaty, Moscow treaty. Now, the Moscow treaty limits the two sides to 1700 to 2200 operationally deployed strategic weapons. In other words, operationally deployed strategic weapons aren't in the Moscow treaty, but that is the way the United States characterizes it. So it is going to be lower than that. How much lower? There has been no public announcement. Unofficial Russians persistently use numbers like 1500, which is only slightly lower. And my guess is this won't be very far from 1500 in either direction.

Under the Treaty of Moscow, as the United States has implemented, operationally deployed strategic weapons means warheads that are actually on ICBMs, actually on submarine-launched ballistic missiles, or actually at bomber bases ready to be loaded on bombers. Now, that is a completely different way than we counted warheads under START. As Hans has pointed out under START, we counted the ability to carry warheads, whether they were there or not. And to give you an example of how dramatic this difference is, the United States has reached 2200 operationally deployed strategic warheads. On 1 April, we released the latest update, which shows that under START, we are credited with 5576 warheads. So reconciling those two ways of counting - I will talk about in a minute - is going to be somewhat challenging.

Third, quote, "The new agreement will include effective verification measures drawn from the START Treaty." And that suggests that the sides aren't going to seek to negotiate new methods of verification. And that should make negotiations easier. After all, we signed the treaty in 1991. We settled on all of the numbers in the Reagan administration. All of the rest of that time was verification. And secondly, it ought to make ratification easier because presumably if 15 years experience has been acceptable, then carrying forward those provisions will be.

Now, in negotiating this, Assistant Secretary Gottemoeller, who will have the lead for our side and her Russian counterpart Antonov will face several types of issues. First, they will have the problem of technical verification details. And Greg is going to talk about that. But more time will be spent between now and signature on adapting the verification regime than on any other topic. But there are going to be a couple of other issues. One is figuring out how to count warheads. It is very clear from the president's statement that the headline when we sign this treaty is supposed to read United States and Russia agree to reduce to 1500 warheads, okay, which means you have got to figure out how you count 1500.

The Russians - unofficial Russians, at least, appear to believe that START must include - I mean, START follow-on must include counting rules similar to those we used in START - counting rules, which now attribute us with 5500 warheads. And they reject the essentially declaratory approach of the Treaty of Moscow. Well, you can't simply Xerox the START counting rules for a bunch of technical reasons we can get into if you want. So you will have to create new counting rules. But creating new counting rules, while it shouldn't be hard in principle, it will probably be time consuming. So that is the second broad time-consuming area - counting rules, adapting verification.

Now, what that means is that it is going to be very difficult to complete new treaty by the end of the year. And in my view, it is going to be impossible to complete a new treaty in time for ratification to even begin, let alone be completed this year. Now, that actually isn't as much of a problem as it sounds because there are some straightforward ways to bridge the gap between the end of START's expiration on December 5th and the entering force of a new treaty.

One, which will not be chosen, is that the five parties to START - that is one reason why it won't be
chosen is there are three other countries that are signatories to START - could decide to pick up the 
option in the treaty of a five-year extension. It doesn't require ratification, doesn't require anything. 
But it isn't going to happen because neither Russian nor the United States wants to involve the other 
three, and neither Russia nor the United States is terribly interested in continuing all of these 
provisions for five years.

MR. KIMBALL: The other three countries being Ukraine, Belarus, and Kazakhstan.

AMB. BROOKS: Who were important at the time, but have played no particular role in this more 
recently. So the easiest thing is to interchange diplomatic notes simply agreeing that we will act 
pending completion and ratification as though the treaty is still in effect.

The two sides could negotiate a very quick six-month extension, be subject to ratification, but 
presumably that wouldn't be a problem. And actually by the time it came up for ratification, if I am 
right, you would have a new treaty to replace it with. One could even negotiate the new treaty and 
make some of its provisions provisionally applicable pending ratification. That was done for START I 
for some of the less significant provisions.

So I would not urge you to assume that if you wake up on 6 December and we don’t have a new 
treaty the arms control process has collapsed. The issues I have been talking about so far are issues 
that will consume a lot of time, but won't require a lot of high-level decisions. Let me talk about 
some that may require some high-level decisions.

First, will the new treaty continue the ban on telemetry encryption? When we talk about the value 
of transparency that START gives us, we emphasize things like inspections. But, in fact, probably one of 
the greatest things START gives us is a ban on encrypting telemetry, which tells us not so much 
about what is going on now, but what is going on in the future. Continuing the telemetry ban will be 
moderately contentious within the United States. If your job is to pay attention to what is going on in 
the Russian Federation, you will like the transparency ban. If your job is to develop a strategic 
ballistic missile defense, you would actually like to be able to use some START assets and see how 
well they performed and be able to encrypt the results.

You can judge which community is likely to be in the ascendancy in this administration. But even if, 
as I suspect, we will - the United States seeks to preserve that ban. Thus far, at the unofficial level, 
the Russians have indicated they want to terminate it. This doesn't appear to be because - to me, at 
least - to be because of any great well thought out evasion scenario. This is just the Russians 
continue to be very, very concerned about intrusiveness. So that is a big issue that will get settled, in 
my view, at the level of the secretary of state or perhaps at the level of the president.

Secondly, how will the treaty deal with so-called conventional strategic forces, most particularly the 
idea to put some conventional warheads on some Trident missiles? Now, I have pointed out to the 
Russians that there is no program. It is not clear the Obama administration will seek to reinstate the 
program. And it is not clear that Congress would fund it if it did. The Russians, as I would have when I 
was negotiating, are not impressed by those arguments. They still want to restrain this. And this 
does appear to be a very big deal for the Russians. The Russians have a tendency in negotiations left 
over from the Soviet period to worry about well, we would call fanciful systems. I once was told, 
apparently with a straight face by a senior Russian official that they had to consider the possibility 
that we would send our special forces in to blow up silos inside the Russian federation. And so that 
meant that they had to take that into account.

And he actually gave every indication of being serious. So if you have that mindset, conventional 
strategic forces could potentially be seen as a big deal. My personal view is if we deploy this at all, it 
will be a niche capability. Why don't you just count it? Just find a way to count it. The Russians 
cannot possibly object to our taking a missile that could carry nuclear warheads and putting 
something that is not a nuclear warhead on it. We ought to just count it. Whether we will or not, we 
will see.

Third issue, how will the new treaty deal with uploads? In Hans' brief, you noticed that we have a 
huge number of non-deployed warheads. That is because we have gotten to the Treaty of Moscow
numbers largely - not entirely, but largely by taking warheads off missiles-primarily the Trident II D-5 missile. Those warheads still exist. And in a relatively short time, they could be put back on.

The Russians, on the other hand, as you saw from the charge, are going to a smaller and smaller number of missiles, which for any reasonable level, they will probably have to fully load, which means they won’t have a comparable ability. They have noticed this. And at unofficial, but very senior levels, they have said they want to constrain our ability to increase on a relatively short notice the loading of U.S. ballistic missiles - and they really mean Trident.

At a session sponsored by Ploughshares and Carnegie, they explicitly suggested one-third. Whatever the right number is, you shouldn't be able to increase the ballistic missile component by more than a third. They also suggested the right way to do that is redesign the Trident missile. That would be quite expensive. Another way to do it would be to reduce the number of tubes, so that the United States was forced to carry closer to the final loading or the maximum loading on each of the remaining tubes. But since neither of those approaches have any analog in START, this is the one area where there will probably have to be some new work in developing verification once we figure out what we are actually going to do about it.

Finally, there are two issues that probably aren't going to be a problem. But if they are, we aren't going to finish this year. The Russians clearly assume that the new treaty will allow them to take an existing single warhead missile - the SS-25 or Topol-M and put three warheads on it. START would not allow that, and arms control Cold War theology, which didn't like - MIRV ICBMs would discourage it. The Russians assume we are just going to allow that. And my guess is we probably are. But I have seen nothing official from this administration to suggest that.

Similarly, in the United States, we assume that one of the reasons for that enormous gap between what we are attributed with and what we have is that we have a number of systems that play no role at all in our strategic nuclear capability, but still count - the B-1 bomber, which hasn't been nuclear in years, the four Trident submarines that were converted to carry conventional cruise missiles, submarines in overhaul is essentially gone for a year. It has no missiles and it has no ability to do anything with them if it had them. A handful of bombers that have been taken out of service, but haven't been cut up in accordance with START provision.

The United States clearly assumes that all of those things will be ground ruled out. It is very hard to see how any set of consistent counting rules can get you to 1500 if those things aren't ground ruled out. I assume the Russians will allow them to be ground ruled out. But once again, I have not seen the Russians say that. So those last two issues are either going to be five-minute issues or five-year issues. And we will find out pretty soon which.

With that, let's turn to Greg and talk about verification.

GREG THIELMANN: Thank you. The START Treaty was concluded 18 years ago after nearly nine years of negotiation. It was a precedent-setting document in many ways. And we have talked about some of those ways. But in my mind, its most enduring feature was its comprehensive provisions for verification. Not only have these procedures continued after achievement of the treaty reductions themselves, their impending expiration at the end of this year provides the most compelling argument for urgently negotiating a START follow-on agreement. And I will be briefly summarizing these provisions to jog our memories or to introduce them to those of you who are too young to remember. (Laughter.) And after the summary, I will offer some thoughts on why comprehensive verification provisions are critical.

I am sure all of you have your copy of the START Treaty with you. If you want to follow along, this is Articles VIII to XII and Article XXV of the treaty. We can separate them into several categories, and I am just going to run down the list of categories. In a couple of instances I will elaborate with examples.

One category is notifications of upcoming strategic tests and other treaty-relevant events. A second is data exchanges that are regularly updated. Another is on-site inspections. And there are 12 different kinds in the treaty. And because this is particularly important, I want to just give a couple of
examples of those different types. Under START, the parties have the right to conduct reentry vehicle inspections of deployed ICBMs and SLBMs to confirm that the missiles do not have more reentry vehicles than the number of warheads attributed to them. So it is very important, obviously, to be confident that a missile that you are counting in your estimates as being single warhead doesn't actually have three warheads per missile. And to be able to inspect them onsite is one of the ways to acquire confidence.

Another example in the field of heavy bombers, a START provision states that each party shall conduct distinguishability exhibitions for heavy bombers, so inspectors can confirm the bombers' declared technical characteristics, distinguishing, for example, which heavy bomber can carry air-launched cruise missiles and which cannot. And this is obviously a significant difference in the capability of the heavy bomber limited.

So another category of verification is continuous monitoring at certain mobile ICBM production plants. This is another thing I would like to highlight. The Russian missile production plant in Votkinsk is particularly important for treaty verification. There are up to 30 U.S. citizens stationed at this continuous monitoring facility. And in the last fiscal year, it was the object of 50 separate U.S. support missions. This is where the SS-25 ICBM was produced, where the SS-27 or Topol-Ms are produced, and where the new MIRV version of the SS-27 would be produced - usually referred to by the Russians as the RS-24.

Another category is cooperative measures such as open displays of mobile ICBMs for viewing by reconnaissance satellites. And this is one of the ways in which a system, which is designed to be invisible to targeteers by being mobile, by being able to conceal itself is at least for the purposes of treaty verification at one moment in time very visible because the sides are required to put their launchers out in the open and expose them to reconnaissance satellites of the other side.

Another category is a commitment not to interfere with national technical means of verification. And this gets into the ban that Mr. Brooks was mentioning on telemetry monitoring. The treaty requires the sides, indeed, not only not to ban encryption, but to provide copies of their own telemetry tapes measuring missile performance. And this gives the sides much greater fidelity to the characteristics of missiles being tested than one can even get with an unencrypted monitoring environment.

A couple of other things about the treaty I would mention is that the Joint Compliance and Inspection Commission, or the JCIC, was established under the treaty as the venue for discussion of any verification and compliance issues that may arise. This is an important institution over the years and has worked out some of the complicated issues that have arisen. Also worth mentioning is the Nuclear Risk Reduction Centers in Washington and Moscow, which are specified in the treaty as the mechanism for transmitting notifications. These centers are in constant contact with each other and operate on a 24/7 basis.

And I haven't even listed here various related agreements in the START Treaty, cooperative measures and unilateral statements, which are not strictly speaking verification measures, but which contribute to the confidence that the parties are not circumventing the treaty.

So why are these provisions so important? They are important so that the sides know that the treaty reductions are being carried out and the limits adhered to. The START follow-on agreement is being pursued not only to win agreement to further U.S. and Russian nuclear forces reductions, but to ensure that the sides have confidence that the reductions agreed to actually do occur.

The verification provisions of START were difficult to negotiate and they were difficult initially to implement. But over the years, their application has led to high confidence by both sides that the treaty commitments were being fulfilled. And we are now accustomed to smooth performance of START verification.* Knowledge that START verification provisions would continue was one of the reasons that verification received so little attention during the Moscow Treaty ratification debate in early 2003.

But as the expiration date of START appears on the horizon, there is a growing awareness on the American side, at least, of what is at stake. Experts know that the Moscow SORT Treaty cannot
replace START. SORT without START is not arms control. We risk not only the effective verification of future reductions; we risk the effective monitoring of the nuclear forces of our most powerful potential adversary.

Even arms-control skeptics acknowledge informational benefits from effective verification provisions, although they don't often mention that there is no substitute for the confidence we gain in our estimates of Russian nuclear forces from START-like verification provisions. The principal objection of the skeptics is the constraints and exposure to which U.S. forces would be subject. And, of course, U.S. forces would be subject to constraints and exposure.

U.S. opponents of verification provisions have powerful counterparts on the Russian side, particularly in the military and counter-intelligence services. It is widely reported that Russia finds START onsite inspections and test data exchanges cumbersome and expensive. I heard firsthand from Russian experts last week in Moscow how much opposition there is to continuing the full package of START verification measures. And I even had to react negatively to one of the fairly moderate Russian experts referring to the evils of the verification provisions of START. And I encouraged them to try to keep these kind of theological observations out of the debates and keep them on a secular level, which seemed to have happened for the rest of our discussions.

So what happens without verification? Without verification, there would be a gradual erosion in confidence that the sides were fulfilling their obligations under strategic reduction treaties. As confidence fell, the force estimates of each side would rise. The calls for higher military spending would become more strident. And price of stability in the face of greater uncertainty would suffer.

There is an interest on both sides to streamline START verification provisions. Keeping what has been essential, discarding what has been onerous and creating what is necessary to verify new limits. I would argue that the leaders of the United States and the Russian Federation have a big stake in maintaining a robust verification regime for any strategic arms control agreement. Effective verification not only builds trust, it reduces the prudent worst-case estimates of military planners on both sides, reducing both defense expenditures and tension during crises.

Accordingly, it is worth repeating the words used by Presidents Medvedev and Obama in their joint statement of April 1st. And I quote, “the new agreement will include effective verification measures drawn from the experience of the parties in implementing the START Treaty and will mutually enhance predictability and stability in strategic offensive forces.” Thank you.

MR. KIMBALL: All right. Thank you very much, Greg, Ambassador Brooks and Hans. We are ready to take questions from you, if you could just state your name, your question. My colleague, Jeff, will bring you a microphone, so the recording specialist can keep track. We have laid it out there and we are ready to go march off to negotiate a START Treaty. Any questions from the floor?

All right. Over here. Arshad Mohammed, please.

Q: Arshad Mohammed of Reuters. Can you explain to us why the Russians have been headed toward - I think the number was about 500 delivery systems? What is the benefit to them, particularly if, as you said, they have noticed that we have more such systems and therefore, could in theory put some of the warheads that we have on systems that they are not supposed to be on.

MR. KIMBALL: Hans, Linton?

MR. KRISTENSEN: My guess is that it is called budget crunch simply because they ran out of the resources in the last decade to continue to sustain this - and even before that - and so they have been sliding down this path. And our intelligence community has been saying ever since the early-mid 1990s that they predicted that even without a START agreement follow on, the Russians would end up somewhere down near 1500. So, you know, that has been a clear horizon for a long time.

Even now with the so-called infusion of money back into the Russian arms enterprise, they are not able to deploy at best more than six new ICBMs per year. And they can't offset what has been phased out. It is going to be phased out over the next decade. So that is where it is heading
regardless of what happens. So that is the reason - the money crunch.

MR. KIMBALL: Linton?

AMB. BROOKS: I agree with that. Remember strategic arms take a very long time, so you don't look at their cash flow now. You look at their cash flow when they would have had to make some development decisions. And in the '90s, they were, you know, they were still for much of the '90s in economic freefall.

If you want a good example, look at how long it has taken them on this new submarine, the Borei class submarine with the not-yet operational Bulava missile. They have been working on that ship off and on, fits and starts, entirely driven by money for 18 years, 19 years.

MR. KIMBALL: Greg, any other -

MR. THIELMANN: Yeah, I mean, the flipside of that question is why does the United States have such a large strategic nuclear delivery capacity? And I mean, the other issue that I think U.S. policy-makers are going to have to answer - not necessarily in the next few months, but over the next two to three years - is in working out a mutually agreeable arms control approach with Russia, you know, is it wise and is it - from a budgetary standpoint and strategic standpoint necessary for the United States to maintain as many delivery systems as it has today? And the submarine force is clearly far in excess of what, I think we need today with 14 operating subs with extremely capable SLBM force on them.

AMB. BROOKS: Yeah, let me just talk a little bit about what might happen. First of all, unrelated to arms control, there will probably be a dispute or an analysis in the nuclear posture review about the future of air-delivered cruise missiles. It has been widely reported that the last administration was considering eliminating them. The current commander of the strategic command is a strong proponent of air-launched cruise missiles. His predecessor was not a strong proponent of air-launched cruise missiles. They are expensive.

So one question will be what do we do about that? And since roughly half the strategic bombers carry air-launched cruise missiles and half don't, that in itself could alter force structure. I think most of us assume that not so much at 1500, which is where I assume this new treaty will be, but it is very clear that the administration wants to get this treaty out of the way so we can get started on a treaty that is much more groundbreaking, a treaty that constrains non-deployed warheads. An awful lot of work that would have to be done before that, but particularly at those levels, it does get hard to see how you sustain the force structure.

My guess is that the United States, for a variety of reasons - some strategic, some political - will want to keep ICBMs. I would be stunned if there are still 450 of them several years from now. I would be stunned if there were less than 150. And anywhere in between, you pay your money and take your choice.

The Navy will want to keep 10 operational submarines, I think. And their logic will go like this. You want more than one submarine in each ocean at sea because if you only have one submarine at sea, sooner or later there will be a problem on that submarine and then you will have nothing. If you want to continuously keep two submarines at sea, you need, rough order of magnitude, five submarines. So you will want five submarines on each coast. Right now you have six submarines on each coast. So the first thing that will happen, I predict, is at least two of the existing submarines will, Navy preference, be converted to carry cruise missiles; comptroller preference, be retired.

The Navy, therefore, is most likely to want to deal with reductions not by reducing the number of submarines, but by reducing the number of missile tubes on each submarine. One of the issues will be how verifiable and irreversible do you have to make that. I mean, the Navy preference, if you are just looking at, you know, you are in charge of the Navy, would be to put a great big chunk of concrete in each, say, hey, everyone once in a while come and you open the hatch and see it is a great big chunk of concrete and not do anything else. The Russian preference would be to cut the submarine in half, take the tubes out, put the submarine back together.
Somewhere between those two is where we are probably going to end up. So my guess is that the answer to your question is a reduction in submarine missile tubes that is much greater than the reduction in submarines, a reduction in the number of ICBMs, and no arms control-driven reduction in bombers, but a reduction in bombers because I think we are going to have to make some fundamental decisions. And my suspicion is that when the current commander of the strategic command leaves, I think he takes the cruise missile force with him.

(Laughter.)

MR. KIMBALL: All right. There is a bold prediction. All right. We had a couple of other questions. Yes?

Q: Yeah, James Acton from the Carnegie Endowment. I guess this question is mostly directed at Linton, but anybody else should feel free to chip in. I guess looking back, you could say that the START verification measures were overkill, that they were incredibly elaborate, very effective, perhaps too effective and too expensive set.

So I just wanted to ask for kind of a bit of historical background about what the dynamics were within the U.S. at the time that drove such incredibly stringent verification. Was it a genuine fear on the part of the negotiating team and the intelligence communities that the Soviets might cheat? Was it knowing how difficult ratification might be in the Senate? Was it for kind of going beyond verification, kind of the desire for deep transparency into the Soviet nuclear complex? I mean, what drove the development from a U.S. perspective of such stringent verification?

AMB. BROOKS: Much of the verification regime was conceptually developed during the Reagan administration. And during the Reagan administration, we believed, not entirely without evidence, that the Soviets would cheat if it were easy for them. And so much of the complexity of this treaty is designed to close doors for circumvention. And much of the complexity of the verification regime is designed to make it harder to cheat.

There was a little bit of looking over our shoulder at the Senate, but I think even if we had had a rubber-stamp Senate, much of what would be there. In fact, an area we didn't talk about at all is there are all sorts of provisions in START to avoid what might be called legal circumvention. Why are you limiting the number of test launchers? Because otherwise the Soviets will build 1,000 test launchers. They will put identical missiles in them and we won't know that they aren't armed, and that will be a significant advantage.

Why are you limiting the number of former heavy bombers, a bizarre euphemism? Because of yet another circumvention scenario. So there is a fair amount in the treaty that I think could be thrown over the side with absolutely no cost to any form of national security in that most of the auxiliary limits are circumvention limits. And most of the auxiliary limits add to the burden of data exchange and probably aren't worth it.

But the answer I think is we really did think these guys were going to cheat. And there was some objective evidence for that belief.

Q: Can you say any more about what that evidence was?

AMB. BROOKS: Yeah, but I am not going to because I can never remember what I know from The New York Times and Hans and what I know from other sources. And the way Hans gets all his data is somebody goes just a little bit beyond what somebody else had said, and then there is more data in the public domain. Sorry.

MR. KIMBALL: Greg?

MR. THIELMANN: Yeah, I wanted to underscore what Linton had said. I am also not going to try to give a lot of specific examples. But obviously, if one looks at the history of our relationship, the Krasnoyarsk radar was a serious violation. It was a serious violation of the ABM Treaty. We talked about it for months, years, so it eventually backed down and deconstructed the radar.
There are obviously examples of treaty violations. The Russians could probably come up with some memories of things on our side that appear to them as violations. But I would just underscore the deep, deep suspicion - I mean, I remember a lot of the debates at the time - various scenarios that seemed to me completely unrealistic, but that members of our intelligence community or other sectors held as serious possibilities. And when Linton says we thought that, well, "we" is a very big collective. And many did not think that some of the provisions were necessary because they were dealing with scenarios that were totally unrealistic.

But in order to satisfy the skeptics on the U.S. side that any agreement could be carried out, obviously, one settled for even more stringent verification measures than some people thought were necessary at the time in order to win order skeptics in agreement. We all remember, you know, trust but verify - that Russian proverb that Ronald Reagan and Felix Dzerzhinsky liked so much. But it wasn't trust but verify. It was we don't trust you, and therefore, we have to verify. And we have to verify very rigorously. That was the atmosphere at the time. And, you know, there are visages of that today.

MR. KIMBALL: Hans, do you have another comment?

MR. KRISTENSEN: I just want to briefly add about in the future. This is not obviously strategic, but on tactical if we are going to move into a follow-on agreement down the line somewhere where tactical nuclear weapons have been involved. Already now, of course, there are, you know, huge uncertainties about it and suspicion and rumors and what have you. And just to give one example is this where the unilateral presidential initiatives that were made back in the early 1990s, where they withdrew and cancelled and scrapped a large amount of tactical nuclear weapons.

The United States today does not put much emphasis on a tactical nuclear weapon system, except in extent to please a small bureaucracy in NATO and to have some of them over there. But on the Russian side, they have made declarations about how they have implemented that. And there was a declaration made in 2007, for example, that showed or reiterated that they had reduced, I think, by a third the naval tactical nuclear weapons, by half the Air Force tactical nuclear weapons, by 60 percent the air defense weapons, and 100 percent the ground-launched weapons.

And our intelligence community, as far as I hear, is that they are saying well, we are not quite convinced that they have actually eliminated the entire ground-launched capability - might have some residual. Great uncertainty about it. There are rumors that are consistent out there. And I know that our State Department has even taken that concern to Moscow. I think it was in 2004, as a matter of fact.

MR. KIMBALL: Just one quick point on verification to respond to one of the things you said, James. I mean, it is often said, and you said it that this is an expensive and burdensome verification protocol that START establishes. But I think we have to think about what the alternative is. I mean, how expensive would it be for the U.S. intelligence community to gather the information that START provides with telemetry tapes and pieces of paper?

I mean, the other value, of course, is in the international context. And this goes back to one of Linton's points about the value of a START follow-on in the current context. The Strategic Offensive Reductions Treaty of 2002 accomplished much, but it did not accomplish a lot of confidence building in the international community about what the United States and Russia are actually doing with their arsenals. And there is also value in this new agreement in incorporating at least the essential bits of the START I verification system into it, so that there is confidence that the U.S. and Russia are actually fulfilling what they are declaring their reductions to be.

So did you want to -

Q: What I wanted to say was that I wasn't making any kind of - (inaudible, off mike) - about what the verification arrangements for the current treaty should look like. I am genuinely interested in just a historical background at the time.
MR. KIMBALL: I understand. Thank you. All right. We have Mr. Hafemeister. Wait for your microphone, please. Thank you.

Q: Dave Hafemeister, technical advisor to the Arms Control Association and Stanford CISAC science affiliate. I was wondering - now we have had 15 years experience on verification and I didn't hear the word "throwweight" mentioned at all. And I also wonder since I don't think they have a perimeter portal device in the United States. And I am Votkinsk since we have re-entry vehicle inspections, one wonders why was that so important now.

So I wonder which - and also, were neutron detectors ever used in START? If you had 11 bumps on an SS-18 - were we allowed to measure neutrons? And did we ever do that? So in other words, which provisions from experience would you not extend?

AMB. BROOKS: The absence of the word "throwweight," as the Soviets might have said, was not by accident, comrade. It seemed like a good idea at the time. It is enormously - read the throwweight protocol and explain it sometime. I wrote it. And it is very hard to do. I don't want to predict, but I would be stunned if throwweight appears in the follow-on treaty unless it is just purely to buy off some constituency somewhere. It no longer makes sense.

The concern about portal monitoring at the time was this. On the one hand, mobile ICBMs are a good thing if you focus on stability because they are not targetable so they are stabilizing. On the other hand, they are devilishly hard to keep track of. And so the solution was to allow them but put specific constraints on their numbers. And because mobile ICBM launchers could be expected to survive, having a lot of spare missiles would give you a reload capability which I don't think the United States ever seriously worried about militarily, but we think could embolden the Soviets with their apparent fascination for a prolonged war.

So we counted the missiles coming out of Votkinsk because we limited the number of mobile ICBMs - we established a portal in the United States purely for reciprocity - it had no meaning. I don't see that personally as big a deal right now. And I think one of the things the Russians would like to get out of is portal monitoring. And when you use words like expensive and cumbersome, that kind of fits.

There's been some very limited use radiation detection equipment. It's in a specialized circumstance primarily to demonstrate that something that's under cover - re-entry vehicle inspections are done with a cover to protect classified details. Each side has accused the other of making the covers so large that they are - essentially could be anything under there. We finally resolved that issue with respect to Trident.

We've resolved some issues with respect to the Russian Federation by indicating that there is no - using radiation detection equipment to demonstrate that there is in certain components aren't warheads. We haven't used it very much, and I - once again, since I don't think this year we'll introduce anything new, I wouldn't expect the treaty of the end of the year to introduce it. When you get into the follow-on treaty and you start controlling at the warhead level, then there's a whole new scope for verification that I'm not sure we're ready for yet.

MR. KIMBALL: Okay. Stephen Young?

Q: Stephen Young with the Union of Concerned Scientists - following onto that exact point. Clearly, I think we want to get onto those issues at some point - both tactical nukes and - (inaudible) - verification and dismantlement. Is there a way in this treaty to encourage that - a way to find a way in the treaty to say we want to go over these issues, we want to have a timeline for our next agreement - just find a forcing mechanism to say these issues - we want to get to these. How do we force that to happen? How do we encourage it happen or sort of encourage whatever?

MR. BROOKS: We encourage it to happen in two ways. One is preambular language. Preambular language - you know, at the beginning of a treaty, there's the part you skip over so you get to the good stuff. But it expresses both a recognition - there will be, for example, recognition of our obligations under the nonproliferation treaty - whether - this administration may refer explicitly to
Article VI with - when we did it, it did not. There will be then a joint statement the two presidents will issue when they sign the treaty, and that will look forward to and perhaps provide a very generalized timeline for the next treaty.

Those things - really - I don't think create an intent. I think they simply reflect it. I mean, the reason there is going to be a follow-on treaty is because this administration is committed to a follow-on treaty and that's true from the president down through the assistant secretary level. So there's going to be an attempt to get one. The reason you'll want to put something in the joint signing statements is to ensure that there's a similar intent on the part of the Russians, who are much less enthused - at least at some level.

The Russians assert - Greg was just there, he may have more insight on this - that they are still thinking about whether very, very deep cuts - below 1000 - are in their interest. I think there's a genuine debate and that probably will not prevent them from negotiating seriously about a treaty somewhere in the 1000 to 1200 range. When you get below that, I think both of us have a whole lot of homework to do that we have not done.

In terms of warhead dismantlement, warhead dismantlement is actually fairly easy to - I mean, not fairly easy - I don't have to do it. (Laughter.) It's fairly easy to think of conceptual ways to monitor warhead dismantlement. You say here are 200 warheads, I can probably give you confidence that they've been turned into something that aren't warheads. What's hard about warhead verification is knowing how many there are.

I mean, suppose tomorrow the Russians gave us numbers and suppose they were true. How do we know? Well, we have a generation of history of these guys and their predecessors lying, so how would we know? And the answer is, I haven't any idea. And spending some of our tax dollars to figure out how to answer that question would be a good thing for this administration to do.

MR. THIELMANN: I would agree that there are various concerns that the parties have that we will obviously not be able to - we will not be able to address in the immediate START follow-on agreement that will very likely be expressed in preambular language to acknowledge that you are hearing with the other side is saying. And in our case, I think tactical nuclear weapons may even be referred to in this treaty. I mean the Russians, I presume, are going to be talking about or asking for some sort of an acknowledgement that their concern about the strategic impact of U.S. missile defenses will somehow be alluded to in at least the preamble of a START follow-on agreement.

So both sides will have concerns that will probably be mentioned in some way, but it's very difficult for any of these things to actually guarantee that something happens any more than START II guaranteed that there would be a START III or START I a START II. I would like to also key off of something else that Linton said about Russian reservations about going much deeper in a future agreement. I was a little startled in Moscow in this discussion among Russian arms control experts to hear something that came very close to a verbalization of a concern that these nuclear cuts - these deeper nuclear cuts they you are advocating are going to unleash enormous U.S. conventional potential, which will then be a strategic threat to the Russian Federation.

And I thought, well, that's very odd, because what you are really saying is you want - you would rather have nuclear warheads than conventional warheads on a heavy bomber, for example - or at least, that's the way it seemed. So there's great irony in this argument. But I think what it did was just another manifestation of sort of the deep - dare I say - shock and awe in Moscow of various manifestations of U.S. conventional military prowess and worry that unleashing whole Trident submarines full of precision conventional warheads or vast fleets of U.S. bombers with non-nuclear warheads that could be used in a very precise way even against Russian strategic targets is very ominous from their point of view.

So I don't think this is going to be something which will be a roadblock for a START follow-on agreement, but it's something that I think we have to at least hear seriously even at the present time.

MR. BROOKS: All right, back to preamble very quickly. I misspoke. We did refer to Article VI. That's
the good news. The not-so-good news is we also referred to the ABM Treaty.

MR. KIMBALL: Which existed at the time. Well, I mean, just a couple thoughts about your question, and I think we are going to conclude, unless there are other questions from the audience. I mean, I agree, Stephen - I mean the statement that the presidents make on the conclusion of the START follow-on is critical to maintain progress.

I mean, this agreement, if it is going to look like we're describing here is going to be disappointing in many ways - in the sense that while the numbers of strategic warheads - however they are counted in the end, will be lower than under the Strategic Offensive Reductions Treaty; they won't be that much lower. And in terms of the devastating potential of 1700 warheads or 1500 warheads, you can't really tell too much of a difference between the two.

So it is going to be important, I think, for the two presidents at that time to stake out their intention to move to the next phase. And as Greg was saying, there are going to have to be at least four issues that U.S. and Russia are going to have to deal with in order to get to the next phase, including a resolution of the debate about the impact of U.S. strategic missile defenses play in the offensive-defensive balance, given that the U.S. system, I would dare say, is not going to be deployed in Poland, at least for some time.

There is time for the United States and Russia to work out cooperative measures or actually some limitations on the overall number of U.S. strategic missile interceptors. There's the issue of tactical warheads which are not even on the negotiating table at all, and a beginning step might be to provide some information on each side about the numbers, so some accounting would be a good starting point, even if we can't tell exactly whether the numbers are true.

And, I mean, these are just some of the issues that the two sides are going to have to deal with for the next phase. But I think this agreement in the end is going to be very important not just because of the numbers, but because it is going to maintain - in some ways, restore - the structure for U.S.-Russian arms control in the years ahead. There's a risk that that's not going to be there if it's not concluded.

I want to thank everyone for being here, for your attention; we'll have a transcript of this out in a few days on the Arms Control Association Website. Have a good morning and please join me in thanking our panelists.

(Appause.)

* Transcript updated online May 4, 2009. The original transcript incorrectly stated "And we are not accustomed to smooth performance of START verification." It should have read, "And we are now accustomed to smooth performance of START verification."