

**CARNEGIE ENDOWMENT  
FOR INTERNATIONAL PEACE**

**CARNEGIE INTERNATIONAL  
NONPROLIFERATION CONFERENCE**

**2:00 – 3:30 P.M.**

**WHAT THE FUTURE HOLDS  
FOR U.S. AND RUSSIAN NUCLEAR WEAPONS**

**CHAIR: ROSE GOTTEMOELLER,  
CARNEGIE MOSCOW CENTER**

**ALEXEI ARBATOV,  
CARNEGIE MOSCOW CENTER**

**AMBASSADOR LINTON BROOKS,  
FORMERLY WITH  
THE NATIONAL NUCLEAR SECURITY ADMINISTRATION**

**MAJOR GENERAL WILLIAM F. BURNS,  
U.S. ARMY (RET.)**

**ROALD SAGDEEV, UNIVERSITY OF MARYLAND**

**MONDAY, JUNE 25, 2007  
RONALD REAGAN BUILDING  
AND INTERNATIONAL TRADE CENTER  
POLARIS  
WASHINGTON, D.C.**

*Transcript by:  
Federal News Service  
Washington, D.C.*

ROSE GOTTEMOELLER: Good afternoon everyone. Let's get started. We are beginning this session a little bit late and I understand we are supposed to end promptly on time because there is a tight schedule for some of the members of Congress who will be participating in the next session. However, because, through no fault of our own, we are starting about 20 minutes late and also because of the fact that there is a great deal of interest, I think, in asking some questions on this important subject, we will try to preserve some time for discussion. So I appreciate it. Already having informed my panel of this, I would appreciate it if you are going to make a question or comment that you keep it as succinct as possible because I'd like to keep the floor open as long as possible, but also give as many people as possible a chance to comment.

So thank you very much for coming today. I'm very happy to see so many friends and colleagues in the hall today and we are looking forward to a lively discussion, in response not only to the opening panel this morning, but also in response to Mrs. Beckett's very, very interesting and, I would say, important speech that we just heard a few moments ago. So let us get started without too much further ado.

Of course, I'm Rose Gottemoeller. I'll be your chair this afternoon. I'm currently the director of the Carnegie Moscow Center, but I have been at the Carnegie Endowment for some years now and working on these subjects. I came up with the idea for this panel because it seemed to me it was high time that we both reflected backwards on nuclear weapons policy and nuclear doctrine as well as disarmament and arms reduction policy; but by reflecting backwards that we begin to look forward. So I looked for the most experienced and the longest serving group of people I could and I think we had excellent success. At least I feel that way.

Our panel is a group of very experienced individuals who have worked both in the United States and the Russian Federation on issues related to, again, nuclear policy, doctrine, and arms control and reduction. I left it up to the panel as to whether or not they would choose to emphasize one topic or the other; I did not say we must all talk about arms reduction or we must all talk about the future of nuclear weapons maintenance and the stockpile. So what you will hear today is what these individuals believe to be the most important topics in this particular arena today.

So again without further ado and with apologies for not making a more fulsome introduction of my panelists – but you have in written form their biographies; it will give you a chance to get acquainted with them if you do not know them – but I would just like to launch into our presentations this morning, beginning, as is normal practice, on the diplomatic front with our visitor from the Russian Federation whose name begins with A, in this case, Alexei Arbatov. So we will first hear from a Russian expert, then General Burns will speak, followed by Roald Sagdeev and then Linton Brooks. So without further ado, Alexei.

ALEXEI ARBATOV: Thank you, Rose. Ladies and gentlemen, during the 15 or 17 years after the end of Cold War, the nuclear environment has been witnessing three paradoxes. One paradox is that nuclear deterrence has survived in spite of the end of Cold War and even in spite of the end of one of the subjects of Cold War; that was the Soviet Union. And moreover, it did not disappear, but nuclear weapons states are largely putting greater emphasis on their nuclear forces as the pillar of their security and international positions.

Second paradox is that after the end of Cold War, nuclear weapons states, with very few exceptions, have become much more easygoing about strategies for implementing or employing nuclear weapons. They no longer consider nuclear weapons as purely deterrent weapons, but rather treated in very practical terms as the useful instrument of conducting preemptive, preventive, and other kind of limited operations to achieve clear political and strategic goals.

And the third paradox is that 15 years after the end of Cold War, instead of doing away with nuclear weapons, nuclear weapons states have done away with nuclear arms control or almost done away with nuclear arms control. Many treaties have been abandoned; others are in stalemate; still others are not ratified and do not have full legal force. I will not give the list because I'm sure you know this long list of failures.

With respect to START I, I would like to mention that START I, as you know, expires in December 2009. START SORT Treaty, which was signed in Moscow in 2002, will expire in 2012, but that is actually a mistake. It will expire simultaneously with START I, because SORT relies on START I for transparency measures. It's not relying on START I for counting rules and dismantling procedures. But at least due to START I, Russia and the United States know with great detail what is happening in strategic forces of each other and they can make judgment whether each other are leaving more or less up to their commitments under SORT Treaty. Without START I, they will be left only to their national technical means of verification or go back to the '70s in judging what is happening with their forces.

The notion behind dismantling of arms control always seemed very strange to me. It was said that after the end of Cold War since we are no longer opponents, Russia and the United States, we don't need arms control. That always seemed to me at best as a very unwise proposition, to put it mildly, and at worst as a very cynical proposition, because it's strange that after the end of Cold War, keeping thousands of nuclear weapons targeted at each other ready for launch within few minutes does not seem like a legacy of Cold War. But nuclear arms control, negotiations, and proceeding with reductions is portrayed as a legacy of Cold War. I do not accept this at all.

It's against the continuation of mutual nuclear deterrence relationship that external events may destabilize our political and military relations. And we see now it's happening with regard to the program of deployment of ballistic missile defense of the United States, in particular deployment in Poland and (Czech ?). I am among those few

in Russia who thinks that this defense is really against Iran; it's not against Russia. But I am in a minority. The vast majority of Russian political elite and strategic community thinks that it's not against Iran, that it's really against Russia.

And they have some serious arguments to put forward for it. First of all, the decision for deployment was taken in contrast to our formerly signed declaration of 2002 on strategic relationship which postulated that we are to jointly develop ballistic missile defenses against third states. That was not kept in mind in Washington when decision was taken. Secondly, we have NATO Russian Council, one of the group discussing theater missile defenses. This question of deployment in Poland and (Czech ?) was never brought to attention of this group. The argument given to us by the United States is that it's not a NATO program; it's bilateral program of United States and Poland, United States and (Czech ?). That's taken as a very, very weak argument in Russia, because clearly if it's to protect American allies in Europe, it's a theater ballistic missile defense and should have been discussed in Russian NATO Council.

That's political part, but there is also a strategic part of it. U.S. ballistic missile defense is an open-ended program. It may start with small deployment in central Europe designed against Iran, but nobody can give a guarantee that it would not go further to other countries, to different systems, and eventually become a system which might be usable or effective against Russian strategic deterrent. That is the argument given in Russia by those who say that it's not really against Iran, but rather against Russia. And they give the example of NATO extension. It started with a very small first step and we were told that nothing would follow. Three countries, then seven countries, NATO now is at Russian border and now American Congress takes decision to encourage Ukrainian and Georgian ascendance to NATO.

So the people who are suspicious of United States intentions point at that and say the same will happen with ballistic missile defense: once the foot is in the door, they will go forward with that and eventually undercut Russian strategic deterrence. That is why a very strong push in Russia to abandon negotiations with Americans, to stop dialogue, and to take counter measures, both in strategic intercontinental systems and in theater systems and, in this way, the argument to withdraw from INF treaty, which is one of the remaining treaties in this area.

That is why proposals of President Putin at a recent G-8 summit was so important. And I would like to draw your attention that it was very difficult to get this initiative at such a high level from Russian president because vast majority of Russian strategic community and political community were against that. They were in favor of asymmetric, what they call retaliatory or response measures in new military programs, not new initiatives in this kind of joint defensive effort. The fact that President Putin put it forward means that he still hopes to restore cooperation with the United States on most important strategic issues. And I think that off-handed attitude of the United States towards this initiative is greatly undercutting this intention and those people in Russia who are behind this intention.

They are greatly fortifying the arguments of those who say that Americans really are interested not in Iran – and Poland is not interested in Iran at all; Poland never talked about Iran until a year ago. Of course, the Polish goal is to upset Russia; that's national idea, it's clear. (Laughter.) But why the United States go along this line? That's not clear. I think that – if I were to give advice to Washington, I would say take this initiative very seriously, because implications are enormous. First of all, it means that Russia may share concern about threat of missiles from the south. Russia never openly (joined ?) by this. Its proposal to use the radar in Azerbaijan is the testimony of manifestation that Russia is considering this as a potential threat. Second, Russia is still trying to work jointly on ballistic missile defenses, which also was not very popular in Russia for a number of years.

And thirdly, if we go along this route – and I could suggest a number of technical projects that may be developed by Russians or United States – we would eventually create a very solid basis for abandoning mutual nuclear deterrence as a basis of our strategic relationship because if you have joint ballistic missile defense, you cannot continue with relationship of mutual nuclear deterrence. You will eventually have to do with that. If you insist on continuing relationship of mutual deterrent, you will not able to develop joint ballistic missile defense and you will not be able to cooperate on nonproliferation in general. Thank you.

MS. GOTTEMOELLER: Thank you very much. (Applause.) While General Burns is taking place at the podium, I will just mention that we had Minister of Foreign Affairs Lavrov speaking at the Carnegie Moscow Center on this Thursday last, the 21<sup>st</sup> of June, and he mentioned that the agenda coming up for the Kennebunkport Summit on the Russian side includes START I, it includes this missile defense question – I agree with what Alexei has said about its importance to the Russian community – and third, Kosovo. But it was very interesting to me that he actually had two major strategic nuclear issues, one offensive, one defensive, on his agenda for the Kennebunkport Summit. General Burns, the floor is yours.

MAJOR GENERAL WILLIAM BURNS: Thank you, Rose. I must say, there's little that Alexei says that I couldn't agree with, so maybe I should just sit down. But I won't. (Laughter.) Today, it is trite to say that the relationship between the United States and Russia has changed dramatically in the past two or so decades. Twenty years ago, our countries were moving slowly to a better understanding of the possibility of real nuclear arms reduction and the possibility to eliminate an entire class of nuclear delivery systems, what became the INF Treaty. The Soviet Union still existed, the United States was both wary of change and the realities of perestroika. And both sides were inching towards a better understanding on international issues. But mistrust and misunderstanding continued to color their relationship.

By 1992, dramatic change was in the air. The United States offered assistance to the new Russian Federation to dismantle surplus docks of former Soviet nuclear weapons and a joint effort was begun. Initially, the United States paid the bill, about \$3 billion. The road ahead was unclear and it was also cluttered with preconceived notions, some of

them faulty cultural and political roadblocks, others vestiges of so-called Cold War thinking. It is remarkable to me as one who participated in this process that we made the progress we did, that the goal of preventing the proliferation of nuclear weapons to other states or entities was begun and the effort continues today.

Today, international terrorism has changed the nature of the proliferation threat, as has the emergence of new nuclear states and the possibilities of others in the near future. The threat of non-state entities possessing nuclear weapons adds to the complexity. The inability of international organizations established for the purpose to deal with proliferation as they were intended is a further complicating factor.

In spite of these obstacles, the pattern of cooperation already established by the two nuclear superpowers provides a basis to encourage them to expand their efforts in joint programs to curb nuclear proliferation, to reduce nuclear weapons stocks in the hands of current nuclear powers to the lowest possible levels, and to prevent non-state entities from gaining access to existing nuclear stocks. This is a tall order, but it is conceivable if both sides agree to remove current obstacles to such cooperation. Today, both sides deploy roughly the same number of strategic nuclear weapons and this number is scheduled to decline to some 2,000 weapons by 2012. Both possess a large reserve of nuclear weapons.

Unfortunately, the political cycle in the United States makes it more difficult at this time to formulate, to fund, and to execute a national security strategy. In my conversations with both Russian and American decision makers, I find that there's still a general misapprehension concerning the conduct of the other. The Russian side reads into relatively benign announcements in the United States that it will deploy defensive missile systems in Europe as a real and direct threat. The U.S., on the other hand, sees in Russian economic expansion – oil and gas sales in Europe come to mind – as a threat in some direct or indirect way. In both cases, early consultations, as Alexei suggested, could have ameliorated the problems.

There are some positive signs. The so-called CTR program in Russia has yielded thousands of contacts at mid- and low-level, as well as high, that have helped to clarify unknowns and provide assurances. Lab-to-lab programs have brought scientists together from both sides to work on common problems. For almost a quarter of a century, the academies of sciences of both countries have met semi-annually to discuss mutual issues and these discussions continued even through the worst days of the Cold War. More recently, joint studies have shown that frank discussion of issues that interfere with future cooperation can be addressed and resolved. The 1993 agreement to purchase 500 metric tons of uranium from dismantled former Soviet nuclear weapons has resulted in the elimination of more than half that amount already.

To build on past successes and learn from past failures will take a noble effort on the part of the United States and the Russian Federation. We need not see eye-to-eye on every issue, but we can agree on certain fundamentals that will create a strategic partnership in an area in which we need not see each other as military competitors,

although we will remain in healthy economic and political competition. We need to examine the nature of our own nuclear relationship as well as our ability to control the further spread of nuclear weapons.

As my son stated quite well in a presentation at the Carnegie Moscow Center recently, “there never has been a moment when America and Russia, still possessing capabilities and responsibilities that no other nation on earth can match, have had a greater opportunity to demonstrate real leadership.” The way forward requires both sides to move from cooperation to true partnership. Some will say that this is not possible given the differences in political systems, the levels of economic competition inescapable in the modern global economy, and remaining mistrust. But just as the United States and the Soviet Union put aside differences in World War II to defeat a major threat to world peace, even the very existence of nations, the two countries can band together in a flexible, strategic partnership to deal with global terrorism and the threat of further nuclear proliferation.

The elements of such a partnership are simple to describe, but quite complex in execution. I’d suggest that the elements are as follows: reduction of the superpower nuclear arsenals to the lowest possible level, consistent with mutual deterrent requirements, and in my mind, that’s well below 2,000 deployed and several thousand in reserve; second, a cooperative effort to make the remaining nuclear weapons stockpiles as safe and secure as possible; third, extension of this effort over time to the nuclear weapons stockpiles of third countries; fourth, joint work to determine the best courses of action to prevent non-state entities from acquiring nuclear explosive materials, nuclear weapons or nuclear weapons delivery systems. Such joint work would inevitably require the sharing of certain intelligence information.

To accomplish this, we need a structure that is both simple and effective. And let me suggest two elements of that structure. First, I believe the United States and Russia should lead the way to establish an ad hoc arrangement of likeminded states to deal jointly with emerging proliferation problems, much like the six nations currently allied to deal with the North Korean nuclear proliferation issue. This could be based initially on the P-5, reinforced by other countries. But I would suggest that in this grouping, we need to have a country from the Middle East, if that’s where we believe one of our major problems lies.

Secondly, I would suggest that we establish a U.S.-Russian military staff committee now along the lines of the U.S.-U.K. combined staff in Washington during World War II, which incidentally continues to exist. The task of this staff would be to bring military leadership together to think about common problems, to plan for eventualities including joint operations, and advise both governments concerning options and opportunities. This staff could be a thorn in the side of both countries, but sometimes administrations need thorns to perfect their thinking.

Two great countries perhaps perpetually connected by their possession of most of the world's nuclear weapons need such a structure to carry out the task the world waits for them to perform. Thank you. (Applause.)

MS. GOTTEMOELLER: Thank you very much, Bill, some very interesting and practical proposals there to discuss, and I hope we'll have a chance to hear your views as to how you think we should proceed on some of these questions of moving forward with practical steps in our discussion period. Next we will here from Dr. Roald Sagdeev. Please, Roald.

ROALD SAGDEEV: Thank you, Rose, for inviting me to speak here. I felt little bit embarrassed because I am here already for more than 70 years and I probably would be more appropriate at U.S.-Soviet type of panel discussion.

MS. GOTTEMOELLER: That's why I invited you. (Laughter.)

MR. SAGDEEV: Thank you. I even feel more embarrassed since it's like being in a Kremlin Palace of Congress; I have to agree with both, with Alexei Arbatov and with General Burns, with whatever they said, complete conformism. (Laughter.) But I think it is very important that we should learn from the lessons of history. This is why I was really saddened by the fact that when Bob McNamara reached microphone, chairperson suddenly stopped session. (Laughter.) I hope you also feel like that.

I would like to say a few words from the point of view of my personal perspective. Half a year ago, I was invited by Secretary George Shultz to participate in a small working meeting to commemorate 20<sup>th</sup> anniversary of Reykjavik. And at this very meeting, Max Kampelman gave a keynote speech and at the end of the meeting we reached the spirit of the proposal which was finally expressed in a Wall Street Journal paper by four prominent, old Cold War warriors, if you would agree with this definition, you heard about it. So I took as my personal assignment after that important meeting to go to Russia to find out what Russians would think about this renewal spirit of going eventually to zero nuclear level, at least as a vision, because all of us probably remember that Gorbachev was on the opposite side of the table expressing exactly the same sentiment as President Ronald Reagan.

And what happened, I found completely different atmosphere in Russia. The very first high-level government official said, you know, right now we probably follow more to what Margaret Thatcher said, that nuclear weapons, perhaps, there is a savior during the Cold War, they saved the world from the World War III. And if you would analyze how Russians finally reversed their position from Gorbachev time to where Russia stands now, you can see that – (inaudible) – qualified as a kind of wrong perceptions about Russians, but this is reality, the perceptions they have developed.

And unfortunately, this perception, as any serious perception, drives the policy decisions, so Russians feel that after the end of Cold War, promises which were given first to late Soviet leaders than to early Russians were abandoned, first of all about

expansion of NATO – I think Alexei was talking a lot about it – and then that it was a very interesting novel idea in the very early '90s about establishing joint early warning center. This idea finally was abandoned as we heard it today from Sam Nunn, how it happened. Then, of course, abandonment of ABM Treaty, which Russians historically paid tremendous attention to the treaty. It was not their invention; it was idea which originally was suggested here by McNamara during President Johnson time, conveyed to Kasigen (ph) during his meeting in Glasborough (ph) here in America and then Russians finally embraced this idea and followed it, if you would see what was happening. And now we are telling them that we don't need to have any more this treaty.

And you can continue this list of complaints or grievances Russians developed and recently some say that most of this complaints were summarized in what is called Lavrov 10 Points. I wonder whether these were the points delivered at your meeting in Moscow.

MS. GOTTEMOELLER: Some of them, not all.

MR. SAGDEEV: Yeah. And this is the perception perhaps, and I would agree with some of the complaints that they probably are not serious. But we have to treat it as a reality and this reality behind which is now vast majority of Russians and people like Alexei or General Dworkin (ph) or Nikolai Lavyorov (ph) who is here, they are obviously in minority in this general strategic thinking in Russia.

On top of it, I think it is very clear that there is a tremendous complex of inferiority developed among Russians after the end of Cold War. A very simple figure: there are 47 countries in Europe, Russia is number 40 among these European countries in terms of per capita income. It happened over night with the dismantlement of Soviet Union. And obviously, this in contrast with the fact that Russia is number one in Europe and number two in the world in the number of billionaires, only behind United States. And the very fact that Moscow became most expensive city in the world as was recently reconfirmed only explains why rich Russians are moving their residences to London. (Laughter.)

I think we have to be very careful and attentive to what President Putin suggested about Gabalinsk (ph) early warning station. Maybe some of you who were a part of ABM discussions during last eight, maybe five years, could remember that about five, six years ago, there was a serious thinking about American strategic experts that there should be cooperation with Russian, leading to enhancement, to modernization of early warning radars which Russia is directing toward east and the south, including Gabalinsk (ph) station. And these experts in Department of Defense were ready to advocate to invest money and new technology to upgrade this station. So finally we got this agreement from Putin. He suggests exactly the same.

About four years ago, I had the chance to discuss briefly the issue of cooperation in ABM with President Putin and I asked him what would be his thinking. It's a completely different situation; it's not any more Star Wars. Actually, he was rather quite

positive. He said that he is not against of such cooperation, but he said we Russians have our own vision how this international or coordinated ABM system should be built and we want our views also be heard. Instead of that, Russians were getting proposals, can you deliver your ICBM launcher so we can test our technology of new ABM. Obviously, Russians were not happy with this proposals.

And in a rare moment of sobering, President Yeltsin, when he was in United States, discovered that really in hair-trigger alert lists of targets on both sides included the most important places in both countries. He said that he will come back and instruct to redirect Russian ICBMs. So it created a huge excitement. You probably remember this statement. I was under siege from the mass media asking where Yeltsin would redirect them. I couldn't find anything except Mars. (Laughter.) So this is the same issue.

And coming back to this morning's session, several proposals from the floor really are worth of paying attention. One proposal, of course, was to go back to recreate joint early warning center and this is again in proposals from some of the participants of this panel. Another proposal was to discuss issue of first use. You know that Russians reversed the former Soviet position and specific explanation I heard recently from one of Russian experts is that U.S. always kept the option for the first use because of tremendous overwhelming advantage Soviets had in conventional arms, especially in tanks. So now we have a new fact. The number of NATO countries' tanks versus number of Russian tanks in the territory relevant to CFE (?) Treaty is now three to one, opposite to what it was before. So now there is a – Russians probably would have a more this parochial arguments to keep the chance, option for the first use. But this is very important if they are really strategic partners as we hear always.

I think in terms of medical doctors, what happened to the process of negotiations is extremely painful. Suddenly everything was abandoned, interrupted and it would remind – it would become comparable to interruption of the treatment by antibiotics against serious medical illness. And you know what would be the result: result would be then the viruses, the microbes would be resistant to this type of antibiotics. So the international situation is now more resistant to serious arms treaty agreement.

So I hope very much that forthcoming Kennebunkport meeting would not end with painkillers like, oh, be friends, we trust each other, but would support some of the serious practical steps. Thank you. (Applause.)

MS. GOTTEMOELLER: Thank you very much. I would just underscore the points that Roald made with regard to proposals such as The Wall Street Journal article to proceed now toward renewing and reenergizing disarmament proposals. I would say that there is, quite frankly, a bit of an allergic reaction to these kinds of proposals in Russia today. Both Alexei and Roald pointed out some of the difficulties and the negativity in Russian overall attitudes toward this question. But I do think it is going to be an important issue for us all as we begin, as we've heard from several speakers, to be more positive toward it on the U.S. side, on the U.K. side, to consider how we will interact

with Russia on this important question. And now I turn with pleasure and last but not least to Ambassador Brooks. Please, Linton.

AMBASSADOR LINTON BROOKS: Thank you. The three previous speakers have talked about the relationship between the U.S. and the Russian nuclear weapons programs or strategic programs. And I agree with almost everything I've heard. I'm going to talk about something else. I'm going to talk about the future of the U.S. nuclear weapons program and whether it's good for or bad for nonproliferation. I'm going to take a view that is probably contrary to 80, maybe 90, percent of the people in the room. And the future of the U.S. nuclear weapons program right now is bound up in a thing called the reliable replacement warhead. That program is being evaluated by Congress and if it survives – and my guess is that it will be more than zero and less than the administration asked for – it has the potential to significantly transform the way we maintain nuclear weapons in this country for decades. And the question is, is that a good thing or a bad thing for nonproliferation.

Now, it's important to understand what we're talking about because the term reliable replacement warhead has two very different meanings. It has a narrow meaning: it's a remanufacture of a particular warhead on a particular submarine launched ballistic missile to replace things on a one for one basis. And that's one meaning. But more generally, it refers to a vision of transforming the entire stockpile and the supporting infrastructure.

Let's start with the narrow meaning and get that out of the way quickly. When the United States – and I suspect this is true for our Russian colleagues as well – was engaged in the Cold War, we believed that we needed an awful lot of weapons and therefore we believed we needed to jam a lot of them on each missile, and therefore we believed that they all had to have the maximum yield for the minimum weight. And we believed that plutonium was a scarce resource and so we had to design these weapons with the smallest amount of plutonium we possibly could. And as a result, the warheads we designed in that period, most particularly the W76, which is our most numerous warhead, were designed with relatively low performance margins and therefore were potentially susceptible to aging. Now, none of those things are true anymore.

And so the reliable replacement warhead is an idea that says, let's take the fact that we're going to have a fewer number of missiles, that we don't care about plutonium, it's not a scarce resource, we are awash in plutonium and trying to get rid of it, and let us redesign existing warheads so that they will have greater performance margins, greater confidence and reliability, better safety, better security. And since those warheads would have the same military characteristics and be carried on the same missiles and hold at risk the same targets, we would assert that that isn't an arms race issue.

In fact, we would go further. You heard this morning arguments about ratifying the Comprehensive Test Ban. Now, I will tell you the chance of that happening between now and early 2009 is small. The chance of it happening in the next administration is relatively large, but whether it is ratified or not, the only conceivable reason for the

United States to consider resuming nuclear testing would be a serious problem on a warhead for which we had no substitute. And the only warhead for which we have no substitute is the W76. So if you diversify the warheads carried on submarine ballistic missiles and if you increase the performance margins and reliability, you dramatically reduce the chance that there'll ever be a nuclear testing issue in this country, regardless of what happens to the CTBT.

That's the narrow meaning. The broader meaning says, you know, that's a good idea for one warhead, maybe it's a good idea for all warheads. Maybe we should transform the whole stockpile based on these principles, make warheads that are less susceptible to the unforeseen effects of aging, make warheads that are easier to maintain, eliminate hazardous materials, make warheads that have modern safety and security features appropriate in the post-9/11 world, and, by doing that, transform the U.S. nuclear weapons complex into something that is more suitable for maintaining a much smaller stockpile. And it's these broader transformational aspects that have people like me excited.

Now, the question is, is this a good thing for nonproliferation. And many in the nonproliferation community have concluded no, that it's not. People fear that this will encourage proliferation, that it will lead to resumption of nuclear testing and that a transformed stockpile will reverse the reduced role of nuclear weapons that has been a welcome byproduct of the end of the Cold War.

I think that's exactly backwards. I think the nonproliferation community should be marching in the streets demanding that we go forward with a reliable replacement warhead because of the practical decisions likely to be made in the United States in the next 10 years, it will have the greatest pro-nonproliferation benefits. First, it will put the final nail in the coffin of nuclear testing because in the next term when we take a serious look at the Comprehensive Test Ban Treaty, the technical argument against ratification will be taken away by a concept that drives any question of the need to test for future problems out.

Secondly, it will enable further major reductions in the stockpile. Some of you know, I'm very proud of the fact that in 2012 when the reductions the president has authorized are completed, we'll have the smallest stockpile since the Eisenhower administration. And at that point, we're only a whole bunch too big. And so this will allow us to take – remember General Burns talked about 2,000, that number needs to come down, but he also talked about large number of non-deployed warheads kept as spares because of concerns with aging warheads and with an aging complex, all of those can go away and be taken apart.

Third, the reliable replacement warhead will enable us at lower levels to continue to speak of extended deterrence. We worry a lot about proliferation, but we need to remember as you heard this morning that some of the people who could proliferate by the end of the year are responsible states who have chosen not to in part because of a belief that American extended deterrence still matters. And if you think that that's left over

Cold Warism, I invite you to look at the reports of Secretary Rice's discussions in Japan following the Korean test.

We've heard today eloquent calls for the total elimination of nuclear weapons, but the technical and political conditions that will permit that are a very long way in the future. And until then, the leading states – Russia and the United States, above all – will have to balance security obligations with support for nonproliferation. And I am arguing that the reliable replacement warhead will be a mechanism to shift that balance in favor of nonproliferation and it therefore deserves support from both the security and the nonproliferation communities. On the offhand chance I've said something you disagree with, I'm looking forward to the discussion. (Laughter, applause.)

MS. GOTTEMOELLER: Thank you very much. Unlike our earlier plenary sessions today, I will ask you to remain seated during the Q & A period. We have a roving microphone that will be brought to you, so please raise your hand if you would like to ask a question or make a comment. Again, I will also remind you to please keep your questions and comments as brief as possible. And Secretary McNamara, if you don't object, I would like to give you the floor first because we were all eager to hear your comment or question this morning. If you would be so kind, sir, as to speak first, we'd appreciate it. (Applause.)

ROBERT MCNAMARA: Rose, you're very kind. I wanted to suggest that the British establish a committee (of four ?) as we have with Kissinger, Perry and Shultz, to put forward their suggestions of how to reduce nuclear risk today, and hopefully the two countries could join together and move forward.

And secondly, I wanted to suggest that the Kissinger, Perry, Shultz group put forward two or three suggestions to what to do. Number one, for god's sakes, take our weapons of hair-trigger alert. It is absolutely insane – (applause) – to maintain what we're doing. Well, I'm glad that a few hands clapped. (Laughter.) I hope more will. But I think Roald would agree with this. It makes no sense at all to have this hair-trigger alert and it's very, very dangerous.

And secondly, it makes no sense to have anything close to the number of nuclear warheads we have today or that we plan for the future. And whether we do as I would prefer – have an agreement with the Soviets not to negotiate every reduction, but it would move in parallel; we'll reduce and they'll watch us and they'll reduce as we do – whether we have an agreement or not, we should reduce. We could begin by reducing 100 warheads immediately. If they move, fine; if they didn't, we could put another 400 down. We have so many warheads today; it's insane. I see Brooks is nodding his head – (chuckles). I suspect 90 percent of the people in the room would nod their heads. It's insane what we're doing. But it's very, very dangerous. So let's try together to gather comments and otherwise and move in that direction. Thank you, Rose.

MS. GOTTEMOELLER: Thank you. (Applause.) Okay, next question will be here. Please identify yourself and, again, so we can have as many questions, please be as succinct as you can.

Q: Yes. My name is Robert Nelson. I'm a scientist at the Union of Concerned Scientists. My question is addressed to Ambassador Brooks. You were describing the reliable replacement warhead and the first manufacture of replacement for the W76 and you made that comment that because the W76 has low performance margins that it's more susceptible to aging.

AMB. BROOKS: Potentially more susceptible.

Q: Isn't, in fact, because of stockpile stewardship, because of the tools that we've developed over the last 15 years, don't we understand our nuclear weapons better today, in fact, in terms of aging than we did at the end of the Cold War? Isn't it true that there is no known reliability problem with the W76? Isn't it true that the JASON committee determined that the core plutonium pits will last much longer than we ever thought? And also, finally, isn't it true that as far as the history of testing goes, that most of the problems that we had with developing our weapons occurred when we developed new designs, not because of aging problems?

AMB. BROOKS: First, yes, it is true that most of the testing was to gain the scientific basis which led to new designs because during the Cold War with the constant design cycle, it's not easy to separate those two. I think it is very unlikely that a situation will arise that – whether we do reliable replacement warhead or not, very unlikely a situation will arise in the next 15 years in which there will be a need to test. But I believe that RRW drives you farther away from that, at least politically and maybe technically.

Secondly, you're right about plutonium aging. The current estimates on when the metallurgical changes in plutonium due to radioactive decay could affect the performance of weapon range to up to near a century, and that's now a consensus of both labs and the JASONS. The consensus is relatively new. Plutonium aging is not the only aging effect.

And third, yes, we do understand with the tools of stockpile stewardship the science of nuclear weapons. We are slowly changing from an empirical science to a theoretical science. That's one of the reasons that I am so personally confident that RRW can be done without testing. And what we understand suggests to us that the accumulation of small changes could have potential reliability problems. There's a perfectly plausible world in which you don't do RRW and absolutely nothing bad happens. Since I happen to think that the consequences of doing RRW are generally benign, I'm happier to be in the world where you do RRW and nothing bad happens and then you can use that as a spur to do the kind of reductions that Secretary McNamara was talking about.

MS. GOTTEMOELLER: Thank you. Yes, sir, on this side. Oh, oh, stop, stop. Again, please identify yourself.

Q: Thank you very much. My name is Frank – (unintelligible) – first name Frank. Netherlands Ministry of Foreign Affairs. As we're speaking about disarmament, I try to imagine how a world without nuclear weapons would look like and then a lot of issues spring to mind and I'll be brief so I'll bring one of them forward and that is the fact that the expertise to make a weapon will still be there. Also, we cannot disinvent this category of weapons. And my point is, would we strive for a world without nuclear weapons, we would need to convince the population that it would indeed be safer or safer and more secure than the world that we currently live in. so my point is how could we prevent that non-state entity or a state that we wouldn't trust would develop a nuclear weapon in a world where other states would not possess such type of weapon? Thank you very much.

MS. GOTTEMOELLER: Okay. General Burns, why don't you start on that one?

MAJ. GEN. BURNS: Let me begin with an answer. First of all, you touched on a very important point: can you really eliminate nuclear weapons? My response is, I doubt it, for the very reason you give. The technology, the science to make nuclear weapons is pretty well known and there's no way to ensure that either clandestine stocks are not maintained some place in the world or someone builds a new nuclear weapon 50 years from now.

I think that there is a possibility that the world, given the right set of circumstances, could eventually prohibit the use and maintenance of nuclear weapons. If there is still the possibility of clandestine stocks, what's the use of prohibiting weapons because the individuals who possess those stocks will not be influenced by a political prohibition? However, you could keep a stock of weapons, 20, 30, for deterrence purposes under some sort of multinational control. There are various ways you could work that kind of a problem.

But I think your point is very well taken. And in my remarks, I said that ideally we should work towards elimination of nuclear weapons, but that's probably an impractical goal in any foreseeable future.

MS. GOTTEMOELLER: Linton Brooks.

AMB. BROOKS: But you also spoke of non-state actors, and there, I think, it's less clear that it's impractical. There's not much good to be said about nuclear weapons, but one thing to be said about them is if you don't have either highly enriched uranium or plutonium 239 or a couple of other very obscure isotopes, you don't have a nuclear weapon. It is almost certainly possible to limit the possession of those two materials to states.

And so I think that if you are worried about the elimination of nuclear weapons, you need to focus on an international regime that will allow states to be willing to give them up. If you are worried about non-state actors acquiring nuclear weapons, you need

to focus on improving global control of highly enriched uranium and plutonium. I used to run the organization that put weapons together and it's enormously expensive. Non-state actors are not going to out and build their own enrichment reprocessing facilities. So that is one area in which I think the physics gives us hope.

MS. GOTTEMOELLER: Alexei Arbatov.

MR. ARBATOV: It's right to concentrate on technical requirements of world free of nuclear weapons and it's clear that the first steps which are necessary to move towards this final goal are shared by majority of international strategic and arms control community and they were listed in the article that was discussed today and there are a number of additional proposals to that effect. However, I think that insufficient attention is given to another aspect of nuclear free world and that is the fact that we want to – those who want to make world free of nuclear weapons certainly would not welcome a world to become world free for usage of conventional forces, world in which those powers like the United States, which have enormous superiority in conventional forces, will have virtual freedom of using this forces.

Also, it should not be a world free for development of weapons on new physical principles. So we are basically talking about a very different world in which the use of force would be strictly limited by international law, supervised by supranational bodies and so on and so forth. That is the kind of thinking which I'm sure we have to develop further because this is more fundamental and much more complicated problem than even the problem of verification of the absence of nuclear weapons materials or tacit, clandestinely created nuclear weapons.

We have to recognize that to live in the nuclear free world, we will not just have to change the way international community has been working for the last 60 years of nuclear age. We will have to change the way it has been working for the last 3,000 years.

MS. GOTTEMOELLER: Roald, since the one question that was asked or one aspect of the question was related to nuclear scientists and the fact that, of course, as the generation that first designed and built nuclear weapons passes from the scene, nevertheless you cannot disinvent nuclear weapons. From a scientist perspective, how do you comment on that question?

MR. SAGDEEV: I think you can not disinvent, it's answer already was given. And the issue is in creating completely different international regime and spirit and Linton and Alexei were talking about it. Hoover Institutions working group chaired by George Shultz and co-chaired by Sid Drell, some of the participants also raised the issue of the last mile, how we would go from, say, a dozen of nuclear weapons to complete zero, someone could cheat, keep it in the pocket or someone could build it later, secretly. And I think in – probably, today's answer should be yes, international community world is not ready now to discuss specific of this last mile. But if it would not start moving, considering this as a vision, as a dream, then we are perished.

MS. GOTTEMOELLER: Okay. Please. Who's got the microphone? Yes, go ahead.

Q: Sorry. David Wolfe, Oppenheimer Institute. I have three questions. I'd be happy to have the panel answer any one of the three.

MS. GOTTEMOELLER: I hope they're quick and then we'll choose.

Q: Yes, they are all quick.

MS. GOTTEMOELLER: Okay, go ahead.

Q: Russia is cooperating with NATO. If Georgia and Ukraine are invited to join NATO, why not Russia as part of NATO? My second question would be why is Russia so concerned about the anti-ballistic missile system that doesn't work, doesn't seem likely to work and is only likely to destroy part of the economy of the United States? And my third question would be, can Russia really speak for the Azerbaijanis in terms of putting a missile defense radar system in Azerbaijan. Thank you.

MS. GOTTEMOELLER: Thank you. We've had, I would say, a go at answering your first two questions in certain ways, although if the panel wishes to comment, that's fine. But I think this question of the interaction with the Azerbaijani government is quite interesting, if Alexei or Roald would like to comment on that. Please, Roald.

MR. SAGDEEV: Yeah. First of all, about destroying American economy. Russia really cares about the well-being of American economy – (laughter) – it's very important for Russia, interconnected world. Besides, you know, some Russians keep even their own money in American banks. I think about Azerbaijan. Before Putin made this statement, he consulted with Ilham Aliyev, the president of Azerbaijan, and then later on there were several separate clarifications coming from Azerbaijan, from Aliyev. And from the point of view of Azerbaijan, which already is hosting this Russian early warning radar system, it seems to be only sensible that instead of being under the control of one former superpower, it could be under international control. So it's quite obvious.

MS. GOTTEMOELLER: Thank you. Okay. Let's have question there, halfway down in the back.

Q: I'm Carl Lundgren (sp) from Jonah Speaks (ph), a new non-profit. And I think I agree with most of the panel members that, at least in the short-term future, the goal of zero nuclear weapons is not achievable, though it may be achievable in a longer term framework. I would like to suggest what I believe is a new idea, that instead of using the nuclear weapons actually to bomb cities in the event of a war, that we could instead use the nuclear weapons coercively to require the evacuation of cities and then not bomb the cities. And the idea of evacuation imposes an inconvenience on each country that wishes to use these weapons until eventually some kind of political

settlement can be reached. And I was wondering if you believe this is a new idea and, if so, whether we should consider it.

MS. GOTTEMOELLER: Well, we've had some new ideas put out on the table with regard to civil defense lately and your question, I think, relates to the tradition of civil defense. I'd like to take one more question and then if our panel would like to comment on yours, that would be most welcome. This gentleman here, please.

Q: (Inaudible.) My name is Howard Moreland (ph), this is quite related to the other question. I would like to have someone explain in the light of the fact that nuclear weapons are justified by their targets, what exactly are the targets that the nuclear weapons states need to be able to destroy with nuclear weapons?

MS. GOTTEMOELLER: And this brings us around to the large discussion that we have not had today about nuclear weapons doctrine and policy, which is, of course, a topic that is being wrestled with here in Washington today and I know the Hill has weighed in on this question. Would any of our panelists wish to comment on larger issues in that realm? Alexei Arbatov.

MR. ARBATOV: Well, with reference to the first question about evacuation of the cities, please do not raise this issue elsewhere because it would be a very good idea to potential catastrophic terrorists to use. So with respect to the states, I do not think this would be accepted.

With respect to the targets, from my experience with that matter and General Dworkin (ph) is sitting here in this room, who's been doing targeting for decades on Soviet and Russian part, but he would much better qualified to respond. My belief is that you cannot directly influence that policy – it will always stay with top secret military experts – but that you can influence that by influencing the weapons which are available and the quality of the weapons, survivability of the weapons, combat readiness level of the weapons. That is the way you should proceed, instead of dealing directly with targeting, which always will remain unverifiable and that's why – it's not a tangible thing for outside people to try to address.

MS. GOTTEMOELLER: Thank you. Let us take two more questions. We have a question here.

Q: Dave Thomson, Los Alamos. I'm a retired 50-year Los Alamos physicist. I just want to make a comment and that is that 10 years ago, General Burns outlined how we – with his NAS panel, outlined how to get to very low numbers of weapons, hundreds rather than thousands. I agree with Linton Brooks on his RRW proposal. The key is to keep the expertise, the scientific expertise, at both Los Alamos and Livermore, such that we know that the characteristics of nuclear weapons, second to none; but to keep the scientists there and active, you need strong nuclear power research programs at these laboratories to keep the people with the necessary expertise on board. And by doing this,

I'm convinced you can have the deterrence of the nuclear know-how at the laboratories and you have to go to very, very low deployed numbers of warheads.

MS. GOTTEMOELLER: Strong science at the lab, in other words.

Q: Yes.

MS. GOTTEMOELLER: Yes. Is your question still active? Please. No, no, no, oh – please go ahead.

Q: Hi, I'm Ed Aguilar with the Project for Nuclear Awareness. This has been a very interesting discussion to me and particularly, of course, I agreed with Secretary McNamara, but the panel has had a lot of good ideas. What I wanted to bring up was kind of more of a bigger picture thing which is I thought the most interesting thing, in a sense, that I've heard all day was Foreign Secretary Margaret Beckett's remark about Wilberforce in starting the anti-slavery movement that had he said, well, let's only abolish slavery in some countries or abolish some of the slaves, it would have never happened. And I think the same thing is true with nuclear weapons. I think we have to have the vision to get to zero. It's going to take a long time, no one should have any illusions about it. But I think that you have to have the vision to really try to do it and not simply to reduce to some low number. I know that there's all kinds of technical issues and it's not going to be – it's going to take a long, long time. But I wonder if the panel would comment on the analogy of slavery, because I think, in fact, in a sense we're enslaved to nuclear weapons today.

MS. GOTTEMOELLER: Thank you very much. Our session is officially over. I'm going to ask each of our panelists to answer and, in response to actually any of the questions today, but in comment perhaps on our last two questions, to make their final wrap-up comments. And two minutes each, please. We'll begin in the opposite order, so Linton Brooks. You have the first opportunity to comment.

AMB. BROOKS: The nonproliferation community and the people who want the vision that we've been talking about should focus on things that are irreversible. Unless you want to spend billions of dollars to redesign systems on both sides, hair-trigger alert, with the greatest respect to Secretary McNamara, is a red herring because it can be changed quickly. Deciding that you're going to say I only target this and I don't target that is a red herring because it can be changed quickly. Deciding that you're not going to shoot until everybody is out of a city is a red herring because at the time you make the decision, you can make a different decision.

What the nonproliferation community needs to encourage is focusing on things that take a long time to reverse. That means lower levels. That means better institutional arrangements among countries. There's only so much intellectual energy in the room and it should focus on things that can't be turned around by a new crowd two years from now.

MS. GOTTEMOELLER: Thank you. Roald Sagdeev.

MR. SAGDEEV: Yeah, I would like to share one particular personal experience I had at the peak of Cold War when I was the director of Moscow Space Research Institute. It was a difficult period, actually the same year when President Reagan said something about evil empire. I hosted a visit of NASA delegation and the head of the delegation was a retired general who until recently then served as a member of commission to select targets. Of course, everything was secret, but mass media was telling that this commission identified 60 targets inside Moscow. So since we were engaging in a very interesting, fruitful, peaceful space cooperation, sending spacecraft to the comet, I asked retired general whether he can make a favor, exclude my institute out of this list. (Laughter.) It was my greatest achievement; it was excluded, he said. (Laughter.)

MS. GOTTEMOELLER: Thank you. General Burns.

MAJ. GEN. BURNS: Sixty plus years since nuclear weapons were used creates a strong bias against the use of nuclear weapons. The situation is quite different today, unfortunately, than it was 50, 60 years ago. Unfortunately, we are muscle bound by large nuclear arsenals on both sides with weapons which are poorly designed for any possible present use, very large yield weapons which were designed originally to blow up cities, and then we decided that blowing up cities wasn't very nice, so you go after infrastructure and so forth and so on. I remember in the mid-50s as a young lieutenant commanding a battery in Germany with two nuclear weapons which we kept in the basement of our headquarters, under guard, of course, and this is before PAL and before all the release procedures that exist today, and we were fairly competent, we didn't use them.

So I think there's some optimism to say today that we're moving in the right direction. Whether we're moving as fast as we can is an open question, but I think we are moving.

MS.GOTTEMOELLER: Thank you. Alexei Arbatov.

MR. ARBATOV: Two points. The question of Russia in NATO was raised here. I think it's a very important subject. Actually, after 9/11 when decision was taken to go for the second stage of extension, President Putin was asked what his attitude towards this process and he said our attitude would change towards this process if Russia became part of this process, but instead of catching at this invitation, he was told NATO doesn't invite anybody, you just should apply and stay in line after Slovenia and so on and so forth. (Laughter.)

I think that still there is time to start changing relations and inviting, changing the practice of NATO in response and in gratitude to what Russia has done to provide Europe with unprecedented security during 1,000 years of its history. It would be worthwhile to invite Russia, not directly to join NATO, but start serious negotiations on conditions,

terms, and possibilities of Russia joining NATO. That in and of itself would greatly change the climate between Russia and NATO and within Russia with respect to NATO.

Second point, the reduction of the nuclear – (inaudible) – is critical. It means that the United States is – (inaudible) – security between – (inaudible) – vulnerable, more trigger alert and so on and so forth. It is a very complicated issue which has to be researched jointly by experts on both sides. Our tentative preliminary calculations show that we cannot go in bilateral format below about 1,000 strategic nuclear warheads both for Russia and the United States. Once we reach that level –

MS. GOTTEMOELLER: That's operationally deployed.

MR. ARBATOV: Operationally deployed, 1,000. Once we reach that level, it would be better to go through the procedures of dealerting weapons, deeper and deeper dealerting and lowering the alert number to as small numbers as possible. That would be the way to preserve security while reducing actual weapons that could be a threat to each other. And the modernization program certainly would be much more limited because you do not have large expense of modernization program to modernize weapons which are in deep dealerted storage condition. So that is the way to move and eventually to expand the circle of countries that might join, certain nuclear weapons states that might join Russia and the United States.

MS. GOTTEMOELLER: Thank you, Alexei, that topic is indeed well worth exploring with a great deal of attention and a good group of experts. We have come to the end of our session today. I will just point out to you all that this is the fourth session on nuclear weapons that I have chaired at one of these Carnegie nonproliferation conferences over the years and some of them have been quite bitter exchanges. I'm very pleased to say that I think the environment is more positive; certainly the environment of the conference over all seems more positive on looking at issues of disarmament and arms control in addition to nonproliferation, all of which valuable and worthy topics to pursue. So I thank you all for bringing your ideas to the table today and please join me, in particular, in thanking our panelists for bringing theirs. (Applause.)

And I will just mention that if you are planning to attend the session with the congressmen at 4:00, it will start right on time and indeed all the sessions will start right at 4:00.

(END)