THE BROOKINGS INSTITUTION

SAUL/ZILKHA ROOM

MEETING U.S. DETERRENCE REQUIREMENTS

Washington, D.C.

Friday, September 22, 2017

PARTICIPANTS:

STEVEN PIFER, Moderator
Nonresident Senior Fellow
The Brookings Institution

JAMES M. ACTON
Co-Director, Nuclear Policy Program
Carnegie Endowment for International Peace

MADELYN R. CREEDON
Former Principal Deputy Administrator
National Nuclear Security Administration

ROBERT EINHORN
Senior Fellow
The Brookings Institution

WALTER B. SLOCOMBE
Atlantic Council
Former Under Secretary of Defense for Policy

* * * * *

P R O C E E D I N G S

MR. PIFER: Okay, good morning. Welcome to the Brookings Institution. I am Steven Pifer, I'm a nonresident senior fellow here, and it'll be my pleasure to both introduce and then moderate today's session on meeting U.S. deterrence requirements. The Trump administration is currently in the midst of its Nuclear Posture Review, which is something that each of the last -- or the -- the -- each of the previous three administrations have done at the beginning of their term. And that document is important; the Nuclear Posture Review will have significant implications for administration decisions regarding nuclear force modernization, nuclear force numbers, nuclear employment policies, and arms control approaches.

Now, the international security environment today in which the Trump administration is conducting its Posture Review is significantly different from what we saw in 2009 and 2010 when the Obama administration did its review. And there are several specific challenges today, which we will talk about. First of all, you have Russia's modernization of its nuclear and conventional forces combined with a Russian effort to undo the post-cold war European security order specifically by its military aggression against Ukraine. Second, and very much in the news, you have North Korea and its increasingly advanced progress on nuclear weapons and ballistic missiles, including the intercontinental ballistic missile that might be able to reach the United States. And then you have China with its growing nuclear and conventional force capabilities in conjunction with a more assertive attitude in its region. And what these developments are doing is leading to changes in the regional military balance, and those changes in turn pose a challenge to the credibility of American-extended deterrence both in Europe and in Asia.

So the Trump administration's Nuclear Posture Review presumably is going to address a couple of questions. One would be, how does the United States reinforce deterrence of potential (inaudible) adversaries? And second, how do you bolster assurance to our American allies in the face of more challenging security challenges? Now, over the past two years, with the generous support of the Ploughshares Fund and the Carnegie Corporation of New York, the Brookings Institution has brought together a group of people who have deep expertise in strategic issues to talk about both the strategic situation as the United States now faces it and also make recommendations regarding U.S. deterrence requirements. And the result of that two years of work is a report which was posted yesterday; you

should have hard copies now entitled "Meeting U.S. Deterrence Requirements Toward a Sustainable National Consensus."

This is a working group report; it has been signed by 18 signatories. Some participated in the workshops that led up to the report, others did not, but you have all of their names is Annex 1. Now, in doing this report on most key issues, the group was able to strike consensus. But one of the objectives that we had when we brought together the group was to bring a diverse range of opinion to the table and so, not surprisingly, there are several issues on which there were differences and the report reflects those differences as well as explaining the different points of views on particular issues. We believe this report can help readers understand some of the key questions that the Trump administration is addressing as it goes through its Nuclear Posture Review. And I would also note that given the spectrum of views of the 18 people who signed this report, it shows that you can find a consensus on difficult issues regarding nuclear weapons, nuclear deterrence and arms control, and it's our hope that our ability to find this consensus will suggest that a consensus likewise could be found between the executive branch and Congress on these questions.

So let me briefly introduce the panelists. You have their -- the handouts with their longer bio, so I won't go into that, but we will start off with a discussion by Bob Einhorn, who's a senior fellow here at the Brookings Institution, but also a former senior State Department official serving as a senior advisor of the secretary of state and also an assistant secretary of state for nonproliferation. Then our first panelist will be Walt Slocombe; he is now at the Atlantic Council, but also with a long history of government service. He is a former undersecretary of defense for Policy. Our next panelist will be Madelyn Creedon; she's a former deputy administrator of the National Nuclear Security Administration and also a former assistant secretary of defense. And then our final panelist is James Acton; he's co-director of the Nuclear Policy Program (inaudible) Carnegie. Not yet a former, but I think that's only a matter of time. So let me turn the presentation over to Bob to walk through the main conclusions of the report.

MR. EINHORN: Thank you very much, Steve, and thank you all for coming. The -- the report that you picked up today covers a lot of ground and it does so in considerable detail, so at the risk of oversimplification, I'm just going to touch on some -- some of its key points.

Today's most pressing deterrence challenge is not the Cold War threat of a massive surprise, nuclear attack against the U.S. homeland; instead, it's the possibility that nuclear-armed adversaries will use the threat of escalation to the nuclear level to act more aggressively in their regions and to prevent the United States from coming to the defense of its allies. The U.S. and its allies have several concerns. Russia might exploit XXXSICXXX -- exploit its local conventional military advantage in the Baltic region by engaging in aggression against a NATO ally and then threaten limited nuclear strikes to compel NATO to back down and allow Moscow to consolidate the gains of its aggression. North Korea could threaten nuclear strikes against U.S. bases in the region and the U.S. homeland to deter the United States from coming to the defense of its Asian allies. And China may believe that its conventional military build-up and its assured nuclear retaliatory capability will give it a freer hand to pursue more assertive policies in the Asia Pacific region.

Given these threats, the report maintains that a top priority should be reinforcing deterrence at the regional level. To do that, we need to strengthen U.S. and allied conventional capabilities to prevent an aggressor from achieving a rapid (inaudible) and to ensure that the United States can expeditiously reinforce exposed allies in a crisis. And we need to maintain the credibility of the U.S.-extended nuclear deterrent both to deter adversaries and to reassure allies. U.S. long range strategic forces remain the bedrock of extended deterrent in combination with (inaudible) nuclear capabilities. In Europe, we need to strengthen U.S. forward-based nuclear posture by completing the B61-12 Life Extension Program and modernizing NATO's dual-capable aircraft. In Northeast Asia, we should continue relying on forward deployable dual-capable aircraft to supplement U.S. central strategic systems. As conditions evolve, we may need to consider more persistent stationing of U.S.-strategic assets in the region, although without nuclear weapons deployed forward.

The United States should avoid giving potential adversaries incentives to build up their strategic capabilities or in the event of crisis to initiate the use of nuclear weapons. U.S.-Russia strategic stability talks would provide a forum for addressing each side's security concerns, strategic concerns, and reducing current tensions. A U.S.-Chinese strategic dialogue would provide an opportunity for the United States to dispel unwarranted Chinese concerns that the U.S. seeks to negate Beijing's nuclear deterrent. It would also provide an opportunity for China to dispel U.S. and allied concerns about the scale and the

goals of its strategic programs. The United States should avoid needlessly arousing North Korean concerns about preemptive attack or regime change. South Korean talk of decapitation only reinforces North Korean paranoia and increases the likelihood that it will strike first. In a crisis, the United States should signal clearly that North Korean restraint would be reciprocated by the United States, but that North Korea's use of nuclear weapons would have grave consequences for the survival of the regime.

The report endorses modernization of -- of U.S. strategic forces, nuclear command, control, and communications, and the Department of Energy Nuclear Weapons Complex. But as Steve mentioned, there are some differences among the report's signatories. Some support the current modernization plan, which calls for 12 Columbia class missile carrying submarines, 400 new ICMBs, and 80 to a hundred B-21 bombers. It's expensive, but they believe it's affordable, given the high priority that must be assigned to ensuring effective deterrence. Others in our working group believe that deterrence could be maintained at lower numbers and that especially given the high costs of modernization, replacement of Minuteman ICBMs could be deferred or perhaps not -- not pursued at all.

Some believe that the long-range stand-off air-launched cruise missile is essential to ensure penetration of adversary air defenses; others maintain that LRSO is redundant, would they be (inaudible) B-21 bomber and can be deferred until risks to bomber penetration justify a stand-off weapon. Some support restoring the nuclear capability of the Tomahawk sea-base cruise missile in order to strengthen extended deterrence both in Europe and in Asia; others contend that it's not needed for deterrence and that reviving a nuclear program retired almost a decade ago would be seen as a step backwards, both domestically and internationally.

To sustain technical expertise, most in our group support allowing U.S. weapons laboratories to explore alternative weapons designs and build prototypes, as long as there is no nuclear testing, no introduction of new designs into the stockpile, and no new missions for nuclear weapons. Others question whether this is compatible with current policy, not to pursue new nuclear weapons.

The Trump administration is likely to review U.S. policies toward the use of nuclear weapons. The report maintains that U.S. adoption of No First Use or Sole Purpose would unnerve America's allies and should not be pursued at the present time. It recommends against changes in the current alert posture at the present time. It suggests that the Trump Nuclear Posture Review should take

a fresh look at the range of target categories subject to attack if deterrence fails. Strategic forces and other military targets would remain the central part of the target base, but the report raises the possibility of also holding at risk a limited number of high-value infrastructure sites with precision-guided conventional strike weapons.

Consideration should also be given to reviewing the -- revising the current approach to launch under attack so that in the event that sensors detected the launch of a massive missile attack against the United States, the president would wait for confirmed nuclear detonation before ordering a nuclear response. Some believe this would give the president vital decision-making time and -- and eliminate the risk of a catastrophic false alarm. Others believe that uncertainty of whether the president will actually launch under attack enhances deterrence; they also believe that current safeguards effectively preclude false alarms. Regarding force levels, signatories believe a force of 1,000 deployed strategic warheads is adequate for deterrence, assuming New START remains in effect and that Russia joins in reducing to that level.

The report calls for reaffirming the goal of a limited homeland missile defense and not seeking the capability to protect the United States against large-scale Russian or Chinese attacks. It supports upgrading homeland defenses against North Korean attack, including by increasing the number of ground-based interceptors, provided that that increase is accompanied by improvements in (inaudible) liability, strengthened sensor capabilities, and enhanced engagement tactics. It endorses working with South Korea and Japan on an integrated regional defense against North Korean missile attacks and it -- and it calls for completing the site in Poland of the European Phased Adaptive Approach Missile System, but says -- and Missile Defense System, but says consideration should be given to not making this site operational if Iran suspends flight testing of missiles capable of striking Europe.

In the area of arms control, the report calls for preserving New START and extending it to 2026, as can be done without referral to national parliaments. It recommends making a proposal to bring Russia back into compliance with the INF Treaty while taking steps consistent with the treaty to counter the effects of Russia's violation, steps that could be augmented if Russia rejects the proposal. In the absence of formal agreement, the United States should propose confidence-building measures to address Russia's large advantage in non-strategic nuclear weapons, tactical nuclear weapons. The U.S.

should oppose the Nuclear -- the so-called Nuclear Ban Treaty and counter attempts to use it to undermine support for burden-sharing and extended deterrence in allied democracies. While the Trump administration is very unlikely to support ratification of a comprehensive test-ban treaty, it should join other (inaudible) nuclear testing powers other than North Korea in adjoined political commitment to refrain from nuclear testing for another 10 years. Finally, it should reaffirm the ultimate goal of a world without nuclear weapons.

High cost investments in strategic programs and infrastructure span decades and require stable funding and continuing political support. Therefore, the signers of the report strongly believe that it's essential to achieve and sustain a bipartisan consensus on deterrence policies when that can survive political transitions in Washington. The report concludes that such a consensus requires a balanced approach, one that combines a strong commitment to ensuring modern, effective deterrence with an equally strong commitment to promoting stability and reducing nuclear dangers through dialogue and further arms control measures. That concludes my summary and we'll now begin commentary by some of our panelists.

MR. PIFER: Okay. Well, Bob, thank you for that presentation. Let me turn the floor now over to Walt Slocombe for the first commentary.

MR. SLOCOMBE: …this project -- oh, thanks -- to be associated with this project and particularly with the leadership of Bob Einhorn and Steve Pifer. I agree with the thrust of the report, including with respect to modernization. I do have three points that I want to make this morning, two quite briefly and then a little more extended.

The first is to underscore the importance of modernizing and improving command and control. This tends to be a sort of forgotten fourth leg of the triad, but it is in fact the central nervous system. And the task is even harder now, not just because of new or at least arguably new cyber and space threats, but because of demands on the system that arise in the context of limited operations are different and I think much more demanding (inaudible) was arguably the case during the Cold War era (inaudible), but the only communication and command requirement was to ensure that an -- that an authorization for and an order to execute a massive pre-plan, then effectively pre-selected attack would get out to the force. Advocates of not relying on launch under attack, which is one of the positions

espoused in the -- in the report, and I'm certainly one of them, need to recognize that -- that the kind of restraint being called for depends not only on enough delivery systems surviving, but on a command and control system that would actually allow for the deliberation and effective communication that is the premise of the requirement (inaudible) of course and avoiding mistakes.

Second, and it is the point that I raised in my separate statement, I think the discussion of integrating conventional weapons operations with nuclear ones is more complicated and in my view, it's addressed a bit too enthusiastically in the report. There is certainly a role for ballistic missile defense, if only as a back-up to a nuclear response, and also for plans for a regional case in which the United States might feel it was necessary -- presumably because of the use of a nuclear weapon against the United States or its allies -- might consider it was necessary to have some nuclear element in its response, but what -- what basically we wanted to carry on is serious conventional campaign to produce decisive military results. That, however, is entirely separate, it seems to me, from the idea that using non-nuclear weapons to execute or as part of executing a primarily nuclear response to a significant nuclear attack would somehow reduce our requirements for the number in characteristic of nuclear weapons in the stockpile in the overall force. And as I noted in my separate statement, a lot of over-enthusiastic rhetoric about this prospect, whatever it does in terms of deterrence or our actual planning, would absolutely play into Russian and Chinese claims that our advanced conventional technology is in fact an element in a quest for capability to negate their deterrence.

And then third -- and a little more extended -- with respect to North Korea, regrettably, deterrence is back on the core agenda of security and I am afraid that unfortunately, we have to regard something coming out of Korea as having replaced the India Pakistan situation as the trouble spots most likely to use -- to involve actual use of nuclear weapons. We are right to seek the nuclearization, but I think we have to face a question that -- that I would say most likely, but certainly may not happen, and we have to decide what we mean by unacceptable. It's legitimate and necessary to consider preemptive options, but there are grave problems of confidence in the success of the operation of what surviving North Korean capabilities there will be to injure us and our allies. And I hate to quote Steve Bannon approvingly on anything, but I think he was onto something when he was said in substance that, "Once you recognize how many Koreans and Americans North Korea could kill without using nuclear weapons,

you begin to lose interest in preemptive military options."

And so we're left with deterrence, not because it is desirable, because it may prove as is most of this -- to most of the things about nuclear weapons the best of a terrible set of options. The report calls for development of a program and specifically for a presidential statement about it; we got our wish about that, at least as to the presidential statement. It would be obviously better to have conveyed a firm resolve than playground boasting and name-calling, but in terms of substance as a declaratory posture for what would happen if the United States had to defend itself after a nuclear attack -- which is, after all, the premise of the president's remark -- is threat to destroy -- there's only a limited difference between talking about and destroying North Korea and saying all option are on the table.

However, that said, in any context, massive population attacks have immense drawbacks, first of all, and I think we cannot avoid this, in moral terms. Would we want the United States to be remembered in history for having killed millions of North Korean civilians whose only crime was to live under a grotesquely oppressive regime? In credibility, for one has to assume that whatever military capabilities survived would be used against us. And there is a real question whether -- not only is it a question, but consequences of that -- there is a real question whether the North Koreans would believe we'd run the risk for anything other than a threat beyond their capability to pose. An obvious line of -- of analysis is that regime values its own survival and therefore we should target that. That's a fine idea, but does -- the question of whether destroying the regime directly is a real option could be answered only by those few people with full access to the relevant information and I think perhaps not by them.

Because of uncertainties, all I can say is that finding and successfully eliminating the North Korean leadership and its instruments of control in a country with thousands of tunneled facilities cannot be accomplished by attacking downtown office buildings or identified military headquarters. We need to search for the necessary intelligence, technology, doctrine, and training to carry through on this concept. One of the many virtues of the -- (inaudible) there were some of the same problem if we tried to (inaudible) counter force attack are a little different. One of the many virtues of the report is that it addresses in the public context some of these issues which in my view, in terms of deterrence, go well beyond the purely programmatic and arms control issues, which are very important in themselves and are fully discussed in the report. Thanks.

MR. PIFER: Madelyn.

MS. CREEDON: Thanks, Steve. I also want to add my thanks to both Steve and to Bob for all of their work in pulling together this report and I also would like to reiterate what Walt said about NC3.

The nuclear command and control is extremely complicated and it isn't just something that is a problem for the nuclear community, but it's very closely linked to a much larger series of communications challenges and that's senior leader communications, survivable communications, as well as communications in the context of COG, the Continuity of Government, and Continuity of Operations. So it is also one that doesn't get enough attention in many respects because so much of it is classified that there's not a lot to talk about it in public, but clearly it's one that does deserve a lot more focus, attention, and frankly, money.

I just want to reiterate some of the things also that Bob said. This report does do a very good job in laying out elements for consideration by the Trump administration both in their Nuclear Posture Review and also in their ongoing Ballistic Missile Defense Review. And as the report makes clear, not everyone agrees with all of the recommendations and conclusions, but the report does do a very good job, I think, at identifying where there is agreement and where there is not and hopefully will provide a guide for this administration. Even where there are areas of disagreement, there also, though, tends to be general agreement on what should be examined and I would say one of the examples of this is really on the whole debate with respect to ICBMs. Even though there are a variety of different views on numbers, alert status, those sorts of things, there's -- there is a consensus that this is something that should be addressed.

I would also emphasize that each administration should debate and develop its own thinking in this area and that while no doubt much -- at least, we hope much in this NPR will remain consistent, frankly, has -- as has been the case with NPRs going all the way back to President Clinton, there will certainly be changes in tone, changes in emphasis, in addition to some changes of substance, but I can't over-emphasize the importance of maintaining consensus and political continuity and support as it goes forward.

But I would like to mention just two areas where I specifically hope there is continuity.

The first, really, is -- is with respect to non-state actors. And notwithstanding all of the rhetoric with respect to North Korea, the -- the threat of a large-scale nuclear attack is still extraordinarily remote and the highest probability of use is still by a terrorist and that would be of either an improvised nuclear device or radiological device, followed by the more and likely event of the use of a stolen nuclear weapon. Because this is still a grave danger, it's -- it's important, I think, to not lose sight of the fact that we need to reinforce our efforts, to strengthen the efforts to prevent weapons, material, and technology from falling into terrorist hands and that this should remain a top priority for the U.S. and for its allies.

The second area that I would just like to touch upon briefly this morning is the area of stockpiled stewardship and management. The stockpiled stewardship and management is a program at the Department of Energy National Nuclear Security Administration that has demonstrated 25 years of success and being able to maintain our nuclear weapon stockpile safely, securely, and reliably without expose of nuclear weapons testing. But the program, when it started, it started when the initial testing moratorium went into place. It's a dynamic program and -- and I want to make sure -- I would like this administration to ensure that that is realized. In other words, it's not a program that's like, "We're done and it's over and we don't have to pay more attention to it." It is a program that over time has also identified new challenges for maintaining the stockpile and has taken advantage of ongoing computational advantages and these must continue to be both addressed and incorporated into the stockpiled stewardship for the next 25 years if we are to continue to maintain our stockpile without nuclear weapons testing.

The science, the experimental facilities, and the computational capabilities are essential to future success and should be fully funded and supported. Stockpiled stewardship not only underpins the actual nuclear weapons arsenal, but in many respects, it underpins the entire nuclear deterrent, including the threat reduction programs, as well as our emergency response programs.

And there's finally one topic that I actually hope that the NPR doesn't address and that would be the extension of the New START Treaty. One of my concerns is that there is a decision in the context of the NPR not to extend New START and I would posit that this is frankly premature. But what I certainly would hope is that the analysis done in the NPR will eventually become the baseline for decisions that are more timely next spring to extend the treaty, which of course could be done for five

years, from 2021 to 2026. The central limits of the New START Treaty will become effective after the first of the year, specifically on February 1st, and frankly given a lot of the discussion with respect to Russia's non-compliance with the INF, it's probably prudent to wait to -- to make sure that Russia does comply with its obligations under New START next February. Assuming that's the case, however, and assuming that there is an analysis done in the NPR that could set the baseline for the extension, then I would certainly hope that those discussions would begin promptly on an extension next spring.

So again, thank you.

MR. PIFER: Thank you, Madelyn. James.

MR. ACTON: Thanks, Steven. Thanks to you and Bob for your leadership on this project. I'm going to focus the bulk of my remarks on arms control this morning, but I want to make three preambular comments to start with.

First, I think when it comes to nuclear weapons policy, there is real value to a lasting consensus that doesn't change from administration to administration on key aspects of that policy. And that consensus is going to need to involve some degree of modernization and it's going to need to involve some degree of arms control and risk reduction. Politically, you need both to build that consensus.

Secondly, I strongly agree with the comments that my colleagues have made. I didn't know they were going to say the -- say something very similar about nuclear command and control modernization. I want to go one step further and say, I think we need a fundamental rethinking of the way we do command and control. Many of the assets, the physical assets used in command and control are dual-use; they're used in both conventional and nuclear operations. And in a large interstate conflict, a conventional conflict against Russia or China in particular, those states would have an incentive to attack those command and control assets perhaps exclusively to try and win the conventional war. That would have huge implications for future nuclear operations and I think we need to do something different with nuclear command and control than just build the same network again, only more expensive.

Thirdly, I think the situation with North Korea is significantly more dangerous than is widely recognized. I think there is a real danger to the North Koreans living up to their threat of conducting a nuclear test in the Pacific. I think we need a major -- a major rethink on our policy towards North Korea. I think we have lost; I think the North Koreans probably already have the capability to hit the

U.S. with a nuclear armed ICBM. I think we respond to our policies -- I think we have to rethink our policies on that front or we end up dead.

On the subject of arms control, let me highlight three different areas, two of which I agree with this report and one of which I don't. On the INF Treaty, I have no great hopes that Russia will come back into compliance, but I think it is strongly in our interests to make a real attempt to get Russia to do so. Of Russia, Russia has launched a series of criticisms of U.S. compliance; I think one of those passes the giggle test. The U.S. installation of the Mark 41 Vertical Launch System in Europe. This is a system that when it's on ships has the capability to launch both cruise missiles, as well as missile defense interceptors. DOD has claimed that this system doesn't have that capability when on land, but if the situations were reversed, we wouldn't just take Russia's word for it. And so I think there's a real offer to be made here.

If Russia takes steps to demonstrate it's come back into compliance with INF, there are viable steps that will almost certainly involve on-the-ground inspections; we should be prepared to offer Russia inspections in -- in -- after coordinating with European allies to -- to demonstrate that our missile defense interceptor sites in Europe are incapable of launching cruise missiles. I don't expect Russia to respond positively to this offer. If it did, great; that would be in our interest. If it doesn't, I think that would pave the way for a more forceful response on our part. I think that response does not need to and should not involve non-compliance systems with the INF Treaty, but I think there is plenty we could do of a distinctly forceful nature that would keep us in full compliance with the INF.

Secondly, I'm probably a bit more proactive looking on the New START extension. I think -- if you think back to when New START was originally negotiated, one of the big criticisms of the treaty was, "There's no chance Russia's going to build up. We don't need limits on the Russian arsenal." I think the short-sightedness of that position has been shown up. I think Russia's aggressive modernization program is -- demonstrates the value of the New START Treaty. I think it is very strongly in both country's interest to extend that treaty by five years. If Russia fails to comply with the limits when they hit in 2018, then -- you know, then -- then actions have to be taken, but I don't think we should pre-suppose that Russia won't meet those limits and I think a five-year extension is strongly in both states' interests.

Finally, on the issue of China, I'm -- I'm more forward-leaning than the report is. The

report says that we should not acknowledge mutual vulnerability with China at this time. I support that in a narrow sense in that I wouldn't just give in return for nothing a U.S. acknowledgement of mutual vulnerability. But I do think we should make it very clear that a U.S. acknowledgement of mutual vulnerability could be the outcome of a process with China. If we want to bring China into a serious dialogue about nuclear risk reduction -- between us and them; not focused on third parties such as North Korea, but between the U.S. and China -- I think we have to make it clear that there is potentially a real upside to China from that process. And so I would want us to indicate, probably privately, that mutual vulnerability acknowledgement -- a U.S. acknowledgement of mutual vulnerability could be the outcome of a process with China. I don't think we should give that in return for nothing. I think we should -- part of the -- and the process of a dialogue with China would be working out what China was to give us in return for such an acknowledgement, but I think that if we really want to start a serious dialogue about deterrence and risk reduction with China, that we have to make it clear that there is a potential win -- it's a potential win-win and we -- and -- and we should indicate in advance that we would be willing to acknowledge mutual vulnerability if in return China is willing to make appropriate reciprocal concessions.

Let me end it there and say that I look forward to the discussion.

MR. PIFER: Well, thank you much, James, and thank you to all the panelists. Let me pose a couple of questions and then I will open up to the discussion to the floor. I -- and I guess my first question would be for you, Walt. Now, I -- I agree that we are probably in a situation where we're going to have to use deterrence (inaudible) North Korea. And I think people are profoundly uncomfortable about that, just given the rhetoric that comes out of the North Korean leadership. But it also seems to me, that I recall vaguely, back in the 1960s when the Chinese first tested a nuclear weapon, you had similar concerns. So -- so we -- we -- we may have to (inaudible) this, but -- but I guess the question would be, would you advocate just deterrence or deterrence and something else? Because there are suggestions out there that maybe the administrations and (inaudible) perhaps should be more proactive in trying to engage the North Koreans.

MR. SLOCOMBE: Well, I -- I think there's no question that we should try -- we should make clear that we are prepared to have exchanges on all these issues and it is not useful to say, "As soon as the North Koreans agree to the only thing we are asking for, which is that they end their nuclear

programs, we will send some diplomats to Beijing to talk to them." I -- I -- I -- yeah, the short answer is yes, I think we should. And I think the issues are sufficiently grave that we should say, "We are," and I'm not sure we haven't said that. "We are prepared to talk to official North Korean counterparts or, indeed, to," they don't exist really, but we could pretend, "non-officials," sort of try two conversations; and do it without pre-conditions, as long as it's without -- that it's on the understanding that it's without pre-conditions on both sides.

And so, no, I agree, I'm -- I'm not -- as my tone of voice probably suggests, I'm not very -- I'm not very optimistic about the outcome, but doesn't cost anything to try and we certainly should. And we should be prepared, which I didn't address. You know, we should be prepared to say -- suppose, for example, the North Koreans had some formula which essentially said, "You will not conspire to overthrow the regime in (inaudible)." That's a horrible regime, I'm not sure what the (inaudible) would mean, but at least we should think about what the North Koreans would be likely to ask that we could conceivably give in some context and with a sufficient quid pro quo from North Korea relating to their programs.

MR. PIFER: Thank you. Madelyn, I want to go back to your -- your previous job with the National Nuclear Security Administration and one of the questions (inaudible) there was a difference (inaudible) issue of whether the national lab should be allowed to develop prototypes. And I think the argument for it being that to keep the muscle memory that even though we're not developing nuclear weapons under current policy, at some point you might have to do that. I wonder if you could sort of discuss a little bit the pros and cons and -- and where you come out on that question.

MS. CREEDON: Oh, I think this is one of these questions that goes back to, "Well, what exactly do you mean by a prototype?" And it's a -- it is a very complicated question and part of the -- part of the underlying assumption in all of this is that the -- the capabilities of our design laboratories, as well as our engineering laboratories, will atrophy over time. Obviously, the folks that did design, that did testing many, many years ago are either retired or they're on the verge of being retired, so the assumption is that, "Well, we have to give new designers something to do." I think that is -- I think that misses some of the complexity of the stockpiled stewardship and also some of the work that has been done both in the Department of Energy and the Department of Defense, as well as the laboratories, to bring along all of the new folks -- you know, I mean, some of these new folks have now been in this

business for 20-plus years -- but to utilize the science, utilize the experimental capabilities, utilize the modeling capability to be able to think about not only what has to be done in the Life Extension Program, but -- but there is that question of, "Well, what would we do if we had a catastrophic failure of the system?"

So there is value, I think, in doing a lot of design work, whether it -- you know, how big is a prototype? Is it a full-up system that's probably not necessary because so much of that full-up system we already can do? It's the electronics, it's the -- it's the plastics. There's only a small part that -- you know, that -- that might need some -- some new thinking. But I -- you know, there would be possibly some advantage, but I think it would have to be something that would have to be somewhat structured. Because you have to ask yourself, "Well, why are -- why are we doing this? What -- what would be the requirement of a -- of a prototype? What -- what do we need that it's not in our inventory? You know, what are those capabilities that somebody down the road would want? What are -- what are our abilities to do life extension? What are our abilities after we go through this first round of life extensions in 40 years; then what's next?" So -- so there is advantage of thinking about it, but I think it's a -- it's an area that we should approach with caution. And as long as it's beneficial to the scientific integrity and underpinning of our laboratories, then there might be some usefulness to do some things down that road.

MR. PIFER: Thank you. And then, James, finally, a question for you. I'd like to draw you a little bit more on the discussion about China and mutual vulnerability, which I personally think probably now prevails now. I mean, it's -- it's hard for me to conceive of a combination of an American strike against China and then the use of missile defenses that would avoid at least some Chinese retaliation against the U.S. homeland. But I wonder if you could talk about a little bit, you know, what are the drawbacks of -- of -- of that kind of acknowledgement of mutual vulnerability and how might we overcome some of those?

MR. ACTON: So I -- you know, the -- in one sense, I agree with you. I think mutual vulnerability is a fact; it's not a choice. I think we are -- I think we are vulnerable to China and I -- I -- I -- you know, I think analysis that suggests that we could successfully execute a first strike on China is wildly optimistic. I'm not convinced the Chinese see it that way. I think most times in history, every country with an -- almost every country with (inaudible) arsenal, when it assesses the survivability of that arsenal,

makes a series of worst-case assumptions that leads it to worry enormously about that survivability.

You know, if you look back to our own nuclear history, to the window of vulnerability and the moment of maximum danger in the 1980s, when there was huge fear of -- and genuine fear that the Soviet Union could largely wipe out U.S. nuclear forces with -- with -- with -- with only a few million U.S. casualties, that would clearly make a nuclear response by the U.S. utterly incredible. Looking back, this is crazy. But it was real. This wasn't manufactured fears; people really believed that at the time. And so I think we should be sympathetic to the possibility that China's concerns about a U.S. first strike are genuine. I -- I'm kind of skeptical that our saying we're mutually vulnerable -- mutually vulnerable would do much to ease those fears, but I do think that that acknowledgement can set you on the road to a -- taking more practical steps to demonstrate that the U.S. generally accepts mutual vulnerability.

That wasn't your question. Your question was, what are the disadvantages of acknowledging it? The big disadvantage right now is going to be assurance and spooking in particular Japan, which, you know, on the one hand, I think many Japanese officials and experts kind of recognize there's mutual vulnerability, but they don't really want to accept it. So on the other hand, that's why I think a reciprocal process makes this a less difficult thing to do. You know, if China was, for instance, to be transparent about its modernization program and the way (inaudible) building up their -- its arsenal, I mean, I would argue, I think, physical material is actually probably the easiest thing for China to be transparent about in the first instance, as opposed to actual warhead numbers. If you have that kind of reciprocal process in which China is giving us something in return for that acknowledgement of mutual vulnerability, I think that makes it much, much easier to handle ally relations.

MR. PIFER: Okay. Well, let me now open up the floor to questions. I would ask, please wait for the microphone and then if you could then state your name and affiliation (inaudible)

SPEAKER: (Inaudible)

MR. EINHORN: Okay. Yeah. Russian nuclear doctrine, as it's described publicly, is -- is relatively benign. They don't talk about this escalate to deescalate approach where they might use nuclear weapons in -- in a limited way in the midst of a conventional conflict in Europe to get NATO to -- to back down. But there have been discussions, less official, you know, Senior Russian Officials who talked about this possibility. Would -- would Putin actually initiate the use of nuclear weapons even in a

limited way? You know, perhaps not. Probably not. I think the Russians are aware that they're opening up a Pandora's box that could lead to, you know, uncontrollable, you know, escalation. But -- but U.S. NATO allies, especially the exposed allies, the Balts and the Pols are concerned about this possible Russian doctrine and they want to make sure that we have a -- a credible response.

Now, the report suggests that we don't need a whole -- we don't need to emulate Russian approaches, we don't need to emulate their (inaudible)-based nuclear capabilities, but we have to be firm in our own modernization efforts, in our -- in our declaratory policy, the -- any use of nuclear weapons, whether limited or massive, is going to have a devastating response. But that is -- you know, Steve, you looked --

SPEAKER: Yeah.

MR. EINHORN: -- more at the --

SPEAKER: Yeah.

MR. EINHORN: -- Russian doctrine more closely.

SPEAKER: Yeah. Bob, let me add to that. I mean, I agree. First, if you look at formal Russian doctrine, it says (inaudible) use nuclear weapons in two cases, is there's an attack with nuclear weapons or other weapons of mass destruction against Russia or Russian ally or if there is a conventional attack against Russia where the existence of the state is at stake. And I've been in probably four (inaudible) conversations with Russian experts in the last two years where they've all said, "Escalate to deescalate beyond that is not part of official doctrine." But there's also been a lot of talk in Moscow in the last 20 years about escalate to deescalate and it's been accompanied by a fairly broad Russian modernization of the range of non-strategic nuclear weapons.

You know, as the United States has come down to a single non-strategic nuclear weapon, the B61 gravity bomb, Russia maintains land, air, and sea-based nuclear systems. And so I -- the message I've -- I actually (inaudible) in the last couple of (inaudible) is, if escalate to deescalate is not part of the Russian doctrine, you need to think in Moscow about your signaling. Because here in the Pentagon, and in Brussels at NATO Headquarters, they are planning for that. They are thinking that this actually may be. Now, if it's not, again, I think Russia has done a horrible job of signaling because they had managed in the last several years to persuade NATO and the Department of Defense that their policy

is something more than they declare it to be.

MR. KEESLING: James Keesling. I'm on leave, so I'm representing the taxpayers. Fine piece of work -- huh?

SPEAKER: (Inaudible)

MR. KEESLING: Thank you. Fine piece of work. I have an innate concern that you essentially accept a number of very optimistic assumptions. Walt pointed out the largely inappropriate expectations for conventional weapons to address ordinary nuclear targets, but I would like to caution the panel that there's grossly excessively optimistic expectations for missile defense. And I would suggest the panel may wish to look at the overall set of recommendations with a basic bias to not accepting marketing expectations. And I'm wondering if you have a means for interjecting said policy looks.

SPEAKER: First of all, I think to be fair, the report is pretty skeptical about the (audio gap) unless you -- unless you want to cut me off, Madelyn.

MS. CREEDON: Oh, I'm sorry. (Laughter) (Inaudible)

SPEAKER: No, it was on. It was on.

SPEAKER: I didn't pay for this microphone. (Laughter)

SPEAKER: I -- I think the report is actually reasonably skeptical about missile defense on any large scale. I think to some degree, there's also -- the point was made earlier. It's all very well for us to be worried about whether the missile defense will work and there are a lot of reasons to think about that. From our own experience with confronting various Soviet and, to some degree, even Russian potential missile defenses, things look different from the other end of the telescope. So that I think a limited missile defense -- which is the only kind that's technically feasible and certainly the only kinds that's in any sense endorsed in the report -- has a very useful deterrent value because -- it's an interesting question, whether we make good on this threat, that if there's a --

We're a little ambiguous about what we mean about a missile aimed at Guam. A missile going a thousand kilometers over Guam presumably is not aimed at Guam and we can tell the difference. I -- (laughs) it's sort of funny that the great risk from us to try to intercept it is that it wouldn't work and the great risk for the Koreans in trying to do the attack is that it would work. I think limited missile defense in the context that we're talking about has some utility. As to big attacks, it's simply a fantasy. I mean, you

don't have to -- you don't have to waste any time with fancy roll-back-the-radar scenarios; just overwhelm it, the Russians and in all probability to the Chinese, can simply outnumber.

SPEAKER: Can I just -- I'd just briefly add, the -- the first point that Bob has in his presentation on missile defenses was the group's conclusion that the United States should revert to a policy of defending the homeland against a limited ballistic missile attack, which I think reflects -- there's an understanding within the group that there are significant limitations on missile defense.

SPEAKER: Well, so, Jim, I'd suggest you, you know, take a look at the report and it -- even in the report's recommendation that we beef up homeland defense against North Korean attack, it's pretty modest. It said, "It may involve increasing the number of ground-based interceptors," but provided that, you know, these interceptors, you know, through, you know, serious testing showed increased reliability, you know, better sensors combined with it and so forth, but that simply increasing numbers is not a solution to this problem. So it adopted a rather skeptical approach.

MR. ROSE: Frank Rose with The Aerospace Corporation. Two brief questions for you, first with regards to Russia. You make a number of recommendations specifically that the new team or new administration propose a missile defense transparency agreement with Russia and that we take steps to make an offer to bring Russia back into compliance with the INF Treaty. The Obama administration tried that and neither of those proposals worked. What gives you any confidence that if the new team was to make a similar offer, it would work? That's the first question.

Second question, I would argue and I think a fair number of people would argue that the New START Treaty played a very important role in establishing the consensus that currently exist for strategic modernization. If the U.S. was to withdraw from the New START Treaty or not extend the New START Treaty, what impact do you think that would have on the consensus for strategic modernization? Thanks.

SPEAKER: In the report, we don't mention that the Obama administration actually had made this proposal on greater transparency and missile defense. We didn't want to doom (laughter) the -- this recommendation by citing its providence. But you're right; we made this proposal, the Russians weren't interested. I think the assumption here is that, you know, now that the European Phased Adaptive Approach is well on its way to being completed, it's unlikely that the Russians through their

propaganda and their, you know, strenuous efforts are going to derail that modernization, that missile defense effort, that they may see incentive now for some constraints on even simply transparency measures to somehow constrain or provide greater predictability about U.S. missile defenses. I think that was the assumption, that maybe Russia would look at this proposal in a different light.

SPEAKER: (Inaudible) missile question?

SPEAKER: On the second part of Frank Rose's question -- and by the way, I want to emphasize that the first question was asked by Hank Gaffney, not Frank Gaffney. (Laughter) I think it's hard to overstate the disastrous effect of not extending New START if the Russians say, as apparently, they have, and they're willing to extend it. It would be disastrous on the merits for the reasons it had been stated. It would also simply confirm the worst fears both in the United States and perhaps more important in other countries about where this administration and where this country is on these issues.

SPEAKER: (Inaudible)

MS. CREEDON: Yeah, I would completely agree and re-emphasize that and that there are so many aspects to the New START Treaty that are in both the U.S. and the Russian interests and that given the efforts to correlate the non-compliance with INF with New START, I think is an extraordinarily dangerous road. At the same time, you have to, you know, obviously, there's some recognition that Russia's not in compliance with INF; on the other hand, is they are at -- in compliance with -- or with the New START Treaty. But the key, really, is when those central limits come into effect and I think one of them -- one of the very devastating, frankly, decisions would be if there were some sort of a preemptive decision, if you will, to not extend the New START Treaty in advance of the central limits coming into effect in February -- which is why in some respects my view on this is that, just come.

They should come into compliance in February and at that point, then there is an opportunity to really treat New START as New START and to go forward and to try and figure out how to get this treaty extended for five years. It would be absolutely devastating for many, many reasons if this treaty doesn't go forward and, frankly, I would say for both countries, not the least of which is it allows assurance with respect to the strategic systems; it allows transparency into programs of both; and it would be one of the few real ongoing productive relations with Russia if we can extend this treaty. So, I think it's absolutely important that we extend it; I just am very concerned about an early decision not to.

SPEAKER: So, Frank, unlike me, you actually (inaudible) the Obama administration made to the Russians since in large part you were the ones making the offers. I was not -- if the Obama -- I was not aware that the Obama administration formally offered the Russians this reciprocal inspection deal on INF. I don't know whether it did or not. What I would say is this on INF: Russia has paid exactly zero public diplomat cost for its violations of the INF Treaty. And if there is any hope of getting Russia to come back into compliance with INF, I think that we have -- the way we deal with INF has to be taken from the behind-the-scenes private arena; that was absolutely the right thing to do first into a more public domain.

We have started to see European leaders -- most recently, the German Foreign Minister -- publicly express concern about Russia's violation of the INF Treaty. I think it will be great if every European Foreign Minister -- I mean, ideally higher than that and Defense Minister, you know -- was publicly berating Russia for its violations of the INF Treaty. I think it will be great if they would privately raise these issues with the Russians, as well as doing so publicly. I think it would enhance the U.S. case if the U.S. could make evidence of Russian non-compliance available publicly. I understand there are sources and methods concerns. Obviously, it's impossible for me to (laughs) evaluate those, not knowing how the intelligence was obtained, but to the extent it's possible to make information public to put more pressure on the Russians, I think it would be strongly in our interest to do so.

And finally, I would also argue it's strongly in our interest to make this offer to the Russians publicly of a reciprocal inspection arrangement. It's such an eminently reasonable thing to offer. You know, we get to inspect your new missile to make sure it's in compliance or you've modified it in ways that bring it back into compliance. In return, with permission with our European allies, you get to verify -- you get to inspect the missile defense installations in Europe. If we make that offer publicly and the Russians turn it down, it's pretty clear to the world which is the constructive party looking for a solution to this crisis and which is the party that's not willing to engage. Now, do I think all of that will work? Probably not. Do I think it's worth giving it a try? Absolutely.

MR. STOIBER: Well, my name is Carlton Stoiber. I'm now Chair of the Working Group on Nuclear Security of the International Nuclear Law Association. This is more of a comment than a question, although it has a kind of a question attached to it. I was very pleased to see that, at least on

pages 12 and 13 of the report, you mentioned nuclear terrorism because it seems to me that this is the real issue before us now that in addition to North Korea poses a tremendous threat. I was surprised, however, that you didn't spend much time analyzing what kinds of effort should go into improving the international regime for nuclear terrorism, including the International Atomic Energy Agency's very major expanding program in that area, giving support to that when the Trump administration is withdrawing diplomatic support for these kinds of organizations and the like, so I'm wondering what some of the panelists think about how the nuclear terrorism issue can be more strongly pursued by the Trump administration.

SPEAKER: Just a brief comment, Carl. You know, I think all the panelists would -- all the signatories of the report would have strongly supported the notion of strengthening these nuclear security efforts including the efforts by the IEA, the involvement of the IEA in strengthening norms of a nuclear security worldwide. It would just seem as kind of beyond the scope of a report that was already getting a bit long, so we didn't really deal with it. And also, the focus was deterrence and recognizing the difficulty of deterring suicidal terrorists who talked about reaffirming the George W. Bush policy reaffirmed by Obama to hold accountable any actors, governments and so forth that in any way assisted terrorists in acquiring nuclear materials or using nuclear materials to produce nuclear weapons and detonating them in the United States. So, it was not really an oversight. It was recognized as is important, but this was not a principle focus of the report.

MS. CREEDON: So, that's one of the reasons why I wanted to highlight that as a topic for discussion, recognizing that in the Obama administration, NPR, this was the first theme, if you will. I, frankly, don't expect that to be the first theme in this NPR, but I certainly hope it is a theme in this NPR because it is extraordinarily important because the way to go about stopping nuclear terrorism obviously, is to prevent them from getting their hands on the materials and the technology and those programs are good. And they certainly should not be stopped and the IE plays a very large role from a nuclear security to ensure that commercial nuclear programs do not go awry. So, a lot of the relationships with the IEA in addition to the direct budgetary support should be maintained. So, there are a lot of extra budgetary efforts that are ongoing and I would certainly hope that those would be maintained and would be supported and funded. Not the least of which is all IEA inspectors get some of their initial training at Los

Alamos National Laboratory. So, these are the sorts of things that we can't lose sight of and that we make sure that in the overarching approach to preventing the threat of nuclear use by a terrorist is always front and center, even though, as Bob said, because this one was, I would say, a little more focused on sort of the core of the nuclear deterrence, even though threat reduction is a huge part of it, it's probably a concentric circle out from this report, but it's absolutely essential that it be addressed and never lost sight of.

MR. GOLDSTEIN: Hello, Joleen Goldstein Howard University freshman, Air Force Reserve, as well as aspiring former pilot and Foreign Service officer. I was curious to know, almost to add onto the gentleman who represents the taxpayers' question, in regards to reports from White House officials considering options to intercept ICBMs during testing, how would you see that escalating the tension, especially during the conversation of deterrence?

SPEAKER: Let me under a slightly contrarian position -- as a legal matter, the United States insists that you contest in space, even though it overflies other countries. I think it's a political question. I think we would have to be real clear about what the provocation was and it's not at all clear to me that it's in our interest to say that simply carrying out a test of a missile that isn't aimed that at -- obviously, if it's aimed at your territory, you don't have to wait until it's hit the ground before you intercept it. I worry a little bit that in the quest to do something, we will do something which doesn't actually make much sense and for all the reasons could easily identified -- before we find out whether these things work in practice, I would like it to be real sure it's a time when we really care whether it works, when it's something we really need to stop.

I think there are other much more effective measures against North Korea. It's not at all clear just what it involves, but if we have really got the Chinese banking system on board and we can really get a sort of Iran-style international financial blockade against Korea, the fact that this stuff physically comes out will be much less important and I would put much more emphasis in the short run on really difficult economic sanctions and stop and so. Well, the president was very nice about the Chinese yesterday. Has he said anything this morning? That --

SPEAKER: (Inaudible) check Twitter recently.

SPEAKER: That I think in terms of actually stopping their programs and putting leverage

on building support, we do a lot better to do things like very comprehensive financial sanctions. And the bankers know how to do this. I mean, and you don't need U.N. Security Council resolutions to make it -- it's nice to have them, but it didn't make it work -- rather than what I honestly think is legally dubious. I mean, the United States' position is that we can overfly in space anybody that we want to for any purpose and I'm not quite sure -- if there's no direct threat. I mean, obviously, if it's aimed at if -- and you can tell, I mean, the matter of fact that it's a thousand kilometers up doesn't mean it's aimed at you; it's aimed over you. It's just not an option I'm enthusiastic -- I would almost rather go bomb an airfield.

SPEAKER: Three brief points. Firstly, our missile defense architecture is currently configured to attempt to defend U.S. territory and the territory of allies. It's not configured to intercept North Korea tests aimed in the Sea of Japan or the Pacific Ocean. And the North Koreans don't tell us generally where their tests are going to land. So, it's actually very difficult to intercept North Korean tests because we can't -- don't know where to put the assets in place.

Secondly, there is the escalation implications of what happens if you successfully hit the test. Actually, I think that's a really interesting question that I haven't thought through enough and I think it's actually really worth thinking through how North Korea would react to that, how we would react to that, et cetera. There's also the implications of missing and let me just make the following observation: We've just implanted THAAD batteries in South Korea, for which the South Koreans are paying a huge economic price from the Chinese. What would be the effect on the U.S. South Korean Alliance if we used THAAD to try and intercept a test and it missed?

SPEAKER: Just for the record, whatever else THAAD is good at, it's a point defense system and unless you thought it as a point -- unless you found out where the -- and I have no problem about intercepting a "test" that's aimed at Guam or Iwakuni or whatever, but if it's simply a test even if it overflies Japan and -- or for that matter, the United States, you know, Alaska, something, Guam. But you would have to have an appropriately -- as Jim says, you would have to have an appropriately configured and located interceptor. I once knew, but I have forgotten what GBI out of Alaska could do; unless it was a very long-ranged test, I doubt if it would be any use.

SPEAKER: (Inaudible)

SPEAKER: Oh. Well, good. Frankly, good. But that's not to say that it would be a good

idea to use it for this.

SPEAKER: (Inaudible)

SPEAKER: Thank you and Dr. Sorid visiting fellow at INS (inaudible). I'm Ined from South Korea. I think you provide many good possible policy option to strengthen extended deterrence to South Korea in this report. But to think there are enough for dealing with a so-called decoupling situation when North Korea finally achieved reliable ICBM nuclear capability.

SPEAKER: So firstly, I'm not worried about a reliable North Korean ICBM; I'm worried about an unreliable North Korean ICBM. Look, during the Cold War, the U.S. successfully maintained extended deterrence of European allies with a homeland that was under much, much greater threat than North Korea currently poses to the U.S. homeland today. Now, I don't want to understate this threat. In fact, I'm one of those people who thinks that North Korea probably already had a rudimentary capability of hitting the homeland with a nuclear weapon and we -- military commanders who talk about that being unimaginable don't have very much imagination. But the problem of decoupling was successfully managed through decades during the Cold War. I don't think it's an insurmountable problem. I think that the real challenge here is a political challenge of the United States demonstrating its societal commitment to South Korea. I think the administration is considering actions, has already taken actions and made statements that undermine that. I think it's considering further actions that risk undermining that particular potential withdrawal of the U.S. Korea Free Trade Agreement. But I think if those high-level political stuff is managed correctly, we can manage decoupling as we did in the Cold War.

SPEAKER: One point I would add to that is -- and I don't think the Koreans fall into this trap as much as some of our other allies. Extended deterrence does not mean extended nuclear deterrence; it means an alliance which involves a common commitment to resist an attack, primarily by a conventional attack by conventional forces. And there's no reason on earth that the United States and the Republic of Korea can't -- whatever you say about Eastern Europe, there's no reason on earth the United States and the Republic of Korea can't mount an overwhelmingly credible and effective conventional defense. So that -- I think it's important not to measure the credibility of the American commitment in general to Korea by whether or not we'd immediately use nuclear weapons when the first DPRK soldier crosses the DMZ, which we wouldn't; why should we? We'd just shoot him.

SPEAKER: A few things. The report is sensitive to this South Korean concern about decoupling and proposes a number of ways of reassuring South Korea about the reliability of the U.S. extended deterrent. It recommends -- some South Koreans have suggested that we adopt a NATO-type approach to extended deterrence and forward basing and participation of allies in the execution of the extended deterrent. The report took the view that this was not suitable in Northeast Asia to adopt exactly the approach that has been adopted in NATO, but it does talk about a number of ways of giving South Koreans and Japanese a greater role in the extended deterrent, including setting up consultative mechanisms for dealing in crises, crisis decision-making and so forth. It also talks about deploying U.S. dual-capable aircraft perhaps more persistently. Now, U.S. dual-capable aircraft visit South Korea on a rotational basis. Perhaps if the threat increases, this could be done in a persistent way, although the report takes the view that we don't actually need to deploy -- redeploy U.S. tactical nuclear weapons on the Korean Peninsula. We see some real downsides to doing that. But reassuring our South Korean ally is critical, but a lot of that is not through hardware, it's through the software of deterrence.

MR. PIFER: Okay, we have time for two more questions at the very back there; let's take those together.

MS. KONG: My name is Grace Kong, I'm with the Institute for Korean American Studies. My question has to do with dealing with mistakes. Let's say one side or the other misinterprets some information and they think that a nuclear weapon has been launched. How does deterrence deal with that scenario? And I guess it would be within command and control, but is something built in to deal with possible mistakes?

SPEAKER: Hi. My name's Carlos, I'm a student from the University of Texas at Dallas and a member of the CTBTO Youth Group. Earlier during the seminar, you mentioned the benefits of supporting a test ban in the moratorium. What would be the political benefits for senators to support CTBT ratification?

MR. PIFER: Give everybody a crack at answering those two questions and let's start here.

SPEAKER: I mean, the consequences of mistake are so horrendous that it's wrong to simply dismiss it. I must say, I think the risk of a technical mistake that is of something going wrong on

the radar or the computers is vastly less than the risk of a political mistake in which the two sides get wrapped up in misunderstanding what -- what's going on, misunderstanding where their interests lie. The short answer is, there are lots and lots -- there is a vast amount of effort aimed at making sure that any report is confirmed and it's one of the reasons that the -- that our report endorses the idea of -- what did we call it -- (inaudible) no response until at least a detonation so we really know for sure what's going on. As far as the CTBT, you know, it would be great if you can count -- what's 40 -- 48 plus -- no. What is it?

SPEAKER: Nineteen.

SPEAKER: Nineteen more -- 19 Republican Senators. I mean, you can't get three Republican Senators to vote against this absurd bill on health care; it's not going to be easy to get 19 Republican Senator -- because they're just terrified of being primary it's going to be impossible to get 19 Senators -- 19 Republican Senators to vote to ratify the treaty, probably even if President Trump endorsed it. I'm sorry that, that's -- (audio gap)

MS. CREEDON: So on the NC3, it's -- obviously, it's an extraordinarily complicated system, but it's also -- at least from the U.S. perspective, has a number of redundancies that have to do with early warning and radars and overhead assets and communications and physical security and how we convey messages and all that. I think, though that, that is a valid question with respect, say, for maybe others, you know, in terms of how those systems are mature. It's a valid question to ask, "How do other," and specifically North Korea, what is their command and control? What is their early warning? Would they misinterpret an exercise for an actual attack? And so, I do think it's a very valid question in the range of misinterpretation.

So, with respect to the CTBT, the advantages of the CTBT, luckily, have been largely achieved through the ongoing moratorium that has been adopted by the U.S. And as long as that carries on, the practical effects with respect to the U.S. are probably -- there's probably not much difference. Where there is a big effect would be in terms of our leadership as a country with respect to proliferation prevention and non-proliferation. The other thing that worries me is without ratifying the CTBT, there -- we always live on the cusp of not supporting the CTBTO and its network of sensors, which in many respects we have done a tremendous amount to support. And so that is an aspect that I would worry about long-term that we not ever pull back our support to the CTBTO because it is such an effective

methodology for early warning, for early determination if there is a test. And it's also a very credible system that has international participation, international funding, that if there were just the U.S. system, it would all -- it would probably always be an issue as to whether this test really occurred. So, there are some advantages, but mostly on the political side, I think, to ratifying the CTBT. But if you gave me a choice would I rather see New START extended or the CTBT ratified, I would vote for New START extension in a heartbeat.

SPEAKER: I wish I could give you a way forward on CTBT, but I can't, as much as I support this treaty. I think Madelyn put her finger on it. The real issue in a U.S. North Korean crisis is not the U.S. Early Warning System, it's the North Korean Early Warning System. I have concerns about the U.S. Early Warning System in a Russia or China crisis, but in a North Korea crisis it's all about North Korea. And I don't think the real problem here is North Korea mistaking a U.S. conventional weapon for a U.S. nuclear weapon. I think the real problem is the -- is North Korea mistaking U.S. conventional operations as being targeted either against its nuclear arsenal or the regime. I think that is a real risk; I think that could be extremely escalatory. Deterrence, by definition, cannot handle that problem, which is not to say that deterrence has its futilities, but it's to say that it has its limits. I don't know how to handle that problem; it's a big one.

SPEAKER: Just on the CTBT point, you'll note that the report recommends that the U.S. get together with world avowed testing powers other than North Korea to agree to a political commitment -- not a legally binding, ratifiable commitment, a political commitment not to test nuclear weapons for at least another 10 years. Didn't include North Korea because we don't, you know, there are -- we went separate means to deal with that problem and not Israel, because we're talking about avowed testing of powers and Israel would clearly not join in any such political commitment. It was felt that this would be desirable because probably the risk of a resumption of nuclear testing is greater today than it was, say, 10 years ago and so it would be useful to get these important powers to commit not to resume testing for at least another 10 years.

Interestingly, in our group, there was some concern about these countries getting together with this political commitment because it was felt it could undermine a support for ratification at the CTBT and the United States because it had already been taken care of with this political commitment.

I think the likelihood of U.S. ratification of the CTBT is so low at this point and has been for quite a while that it's worth buttressing the norm against nuclear testing through this political commitment.

MR. PIFER: Okay. Well, our time has now expired, so first of all, we do hope you find that the report is of interest and please join me in thanking our panelists. (Applause)

SPEAKER: Thank you.

* * * * *

CERTIFICATE OF NOTARY PUBLIC

I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

Carleton J. Anderson, III

(Signature and Seal on File)

Notary Public in and for the Commonwealth of Virginia

Commission No. 351998

Expires: November 30, 2020