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Before the

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

HEARING TO RECEIVE TESTIMONY ON UNITED STATES STRATEGIC
COMMAND PROGRAMS

Tuesday, April 4, 2017

Washington, D.C.

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UNITED STATES STRATEGIC COMMAND PROGRAMS

Tuesday, April 4, 2017

U.S. Senate
Committee on Armed Services
Washington, D.C.

The committee met, pursuant to notice, at 9:32 a.m. in Room SD-G50, Dirksen Senate Office Building, Hon. John McCain, chairman of the committee, presiding.

Committee Members Present: Senators McCain [presiding], Inhofe, Wicker, Fischer, Cotton, Rounds, Ernst, Tillis, Sullivan, Perdue, Strange, Reed, Nelson, Shaheen, Gillibrand, Blumenthal, Donnelly, Hirono, Kaine, King, Heinrich, Warren, and Peters.

1 OPENING STATEMENT OF HON. JOHN McCAIN, U.S. SENATOR
2 FROM ARIZONA

3 Chairman McCain: Good morning.

4 The Senate Armed Services Committee meets today to
5 receive testimony on the posture of U.S. Strategic Command.

6 We would like to welcome back General Hyten, who is
7 making his first appearance before this committee as the
8 Commander of U.S. Strategic Command. We thank you for your
9 many years of distinguished service, General.

10 Over the last 2 years, civilian and military leaders at
11 the Department of Defense, from the Secretary of Defense on
12 down, have warned this committee about, quote, a return to
13 great-power competition. Nowhere is this reality more
14 evident than in Russia's and China's intensifying efforts in
15 the nuclear, cyber, and space domains, which are the focus
16 of Strategic Command's mission.

17 Russia continues to wield nuclear threats against
18 allies that stand up to its aggression in Ukraine. It is
19 well on its way toward completing the modernization of its
20 strategic nuclear forces and has gone out of its way to
21 deploy new nuclear capabilities not limited by the New START
22 treaty.

23 Russia's deployment of a new nuclear ground-launched
24 cruise missile in violation of the 1987 INF Treaty is a
25 clear signal of the elevated role of tactical nuclear

1 weapons in Russian military doctrine. Moreover, this
2 violation leaves the United States as the only country in
3 the world abiding by treaty limits on its intermediate-range
4 missile forces, a dangerous asymmetry that has implications
5 for effective deterrence not only in Europe, but the Asia-
6 Pacific as well. Merely hoping that Russia will return to
7 treaty compliance is insufficient to the seriousness of this
8 threat. That is why Russia's violation of the INF treaty is
9 so significant because it calls into question basic
10 assumptions about U.S. nuclear policy, assumptions we must
11 be prepared to reevaluate given the new realities of our
12 strategic environment.

13 China has one of the world's largest and most
14 comprehensive missile forces, continues to modernize its
15 nuclear capabilities by adding more road-mobile systems and
16 submarine-carried nuclear weapons, and continues to pursue
17 counter-space capabilities designed to limit our use of
18 space.

19 Beyond Russia and China, the breakneck pace of North
20 Korean ballistic missile and nuclear testing in the past few
21 years means that a North Korean missile tipped with a
22 nuclear warhead capable of reaching our homeland is no
23 longer a distant hypothetical but an imminent danger. And
24 Iran's continued development and testing of advanced
25 ballistic missiles suggests that its nuclear ambitions may

1 have been delayed, but they have not been dashed.

2 These growing nuclear threats from great powers and
3 rogue states indicate that whatever well-intentioned hopes
4 we had after the end of the Cold War, the United States can
5 no longer seek to reduce the role of nuclear weapons in our
6 national security strategy, or narrow the range of
7 contingencies under which we would have to consider their
8 use.

9 That is why Congress has demonstrated its support for
10 modernizing each leg of the nuclear triad, including a
11 replacement for the air-launched cruise missile, through
12 annual authorization and appropriations acts. Modernization
13 is not cheap, but it is affordable: just 2 percent of the
14 defense budget over the next 10 years, according to the CBO.

15 General Hyten, you told the committee last year that
16 any program delays or reductions in funding will increase
17 the risk to strategic and extended deterrence mission
18 requirements, negatively impacting global stability and our
19 national security. We look forward to your assessment as to
20 whether there may be any such delays.

21 Finally, we understand that the Department of Defense
22 will conduct a nuclear posture review, the first since 2010.
23 That previous nuclear posture review stated: "Russia and
24 the United States are no longer adversaries, and prospects
25 for military confrontation have declined dramatically."

1 What a relief. General Hyten, the committee is interested
2 in your assessment of how the strategic landscape has
3 changed since the last review and what assumptions need to
4 be reexamined.

5 With respect to space, after years of prodding from
6 this committee, I am pleased and, in some respects,
7 impressed with Strategic Command's enhanced focus on
8 responding to Chinese and Russian activities in space. We
9 have come a long way in the past few years. But the
10 fundamental fact remains: our space superiority is at risk.
11 Russia and China are intent on exploiting our dependence on
12 space to achieve an asymmetric advantage. To that end, both
13 countries are investing significant resources and achieving
14 real progress as they pursue, test, and demonstrate a full
15 range of capabilities such as anti-satellite missiles, co-
16 orbital weapons, jamming, and cyber.

17 General Hyten, you were the architect of the Space
18 Enterprise Vision when you were Commander of Air Force Space
19 Command. I look forward to hearing more from you on what is
20 required to sustain our space-based military advantage.

21 Senator Reed?

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1 STATEMENT OF HON. JACK REED, U.S. SENATOR FROM RHODE
2 ISLAND

3 Senator Reed: Well, thank you very much, Mr. Chairman.
4 Let me join you in welcoming General Hyten to the committee.
5 We are grateful for your service and for the dedication of
6 the many men and women who serve with you.

7 General, in a speech you gave earlier this year at
8 Stanford's Center for International Security and
9 Cooperation, you talked about the enormous responsibility
10 you have assumed in ensuring our nuclear deterrent is
11 capable of deterring threats that are existential to our
12 homeland. It is a sobering responsibility to be the one who
13 will give advice to the President on the options before him
14 and then be the one who must direct the execution of those
15 options, and we appreciate the skill and the fidelity you
16 bring to that task. Thank you, sir.

17 The President has directed the Department to conduct a
18 nuclear posture review to outline our strategy and posture.
19 I look forward to considering that review when it is
20 completed. As the chairman noted, the last one was done in
21 2010 and the threat environment today is considerably
22 different. The most significant developments are Russia's
23 nuclear modernization and its bellicose threats about its
24 nuclear capability and the significant advancements made by
25 North Korea in its nuclear missile programs.

1 But there are other troubling advances. China is
2 fielding its own SSBN that will patrol the Pacific, which
3 will hold most, if not all, of our homeland at risk. In
4 addition, Pakistan and India continue to develop their
5 nuclear capabilities with tactical and long-range missiles,
6 which in some cases reach well beyond their borders,
7 affecting nations to which we have made security
8 commitments.

9 In other words, General Hyten, while Russia with its
10 near-peer nuclear standing is and should be the focus of the
11 next nuclear posture review, the landscape is quickly
12 shifting. It has become multi-polar, and how we structure
13 our deterrence and the military options are changing
14 rapidly.

15 Finally, we are now coming to grips with our own
16 nuclear modernization. Because of the existential threat it
17 deters, there has been bipartisan support for modernization
18 of the nuclear triad in this committee. I am hopeful that
19 this consensus continues because this is a 20-year
20 acquisition program extending well beyond this and future
21 administrations.

22 Let me touch on a few other topics.

23 In the area of space, we will value your expertise to
24 develop long-term requirements and plans to counter the
25 asymmetric threats to our space assets. I assume that will

1 be discussed further in tomorrow's closed session.

2 In the area of missile defense, you are responsible for
3 synchronizing global missile defense planning and
4 operations. I look forward to hearing your thoughts on the
5 state of our homeland and regional systems. The
6 administration has called for a missile defense review,
7 which also needs to address the topics contained in a
8 provision of the fiscal year 2017 Defense Authorization Act,
9 which include left-of-launch missile defeat capabilities,
10 cruise missile defense of the homeland, and the role of
11 deterrence in missile defeat policy. We look forward to
12 hearing your thoughts on this review and the ongoing
13 improvements to our interceptors, sensors, and command and
14 control system.

15 Thank you, Mr. Chairman. I look forward to the
16 testimony.

17 Chairman McCain: Welcome back, General Hyten.

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1 STATEMENT OF GENERAL JOHN E. HYTEN, USAF, COMMANDER,
2 U.S. STRATEGIC COMMAND

3 General Hyten: Thank you very much.

4 Chairman McCain: By the way, your complete statement
5 will be made part of the record.

6 General Hyten: Thank you, Mr. Chairman.

7 And good morning, Chairman McCain and Ranking Member
8 Reed, members of the committee.

9 Since the end of World War II, strategic deterrence has
10 underwritten our Nation's security and preserved our way of
11 life. Our nuclear force has been and always will be the
12 backbone of our Nation's strategic deterrence.

13 Today the nuclear force of the United States is safe,
14 secure, reliable, and ready. It is the foundation of the
15 combatant command I am honored to lead.

16 However, in the 21st century, strategic deterrence is
17 more than nuclear. It is the integration of all our
18 capabilities in all domains across all the combatant
19 commands, other governmental organizations, and alongside
20 our allies.

21 The global security environment we operate in has
22 changed. Our adversaries are developing advanced nuclear
23 and conventional weaponry that rivals our systems and
24 capability and capacity. They fully understand the
25 warfighting capability that cyber and space can enable. To

1 maintain technological and operational superiority, our
2 military must stay ahead of our adversaries. We must adapt
3 and modernize.

4 The primary focus of our deterrence modernization
5 efforts must address the entire nuclear infrastructure:
6 first, the platforms, the ICBMs, the submarines, nuclear
7 capable heavy bombers with their associated tankers.
8 Second, the actual nuclear weapons themselves; and finally,
9 the nuclear command and control architecture that enables
10 the entire enterprise. They are all essential to this
11 security of our Nation.

12 At a time when our adversaries have significantly
13 modernized and continued to upgrade their nuclear forces,
14 nearly all elements of the nuclear triad are operating
15 beyond their designed service life. Any recapitalization
16 program delays will further diminish these capabilities and
17 affect our ability to execute our mission.

18 Space is a warfighting domain just like air, ground,
19 maritime, and cyber. We must normalize how we plan and
20 operate in space. The same concepts that govern other
21 military operations also apply in space. Efforts taking
22 place with the interagency, allies, partners, and commercial
23 industry to develop capabilities, integrate, and execute
24 operations is beginning to pay dividends. Our integrated
25 missile defense network continues to disseminate across the

1 globe as a sign of our commitment to our allies and shared
2 common defense.

3 Ballistic missile proliferation is increasing as more
4 countries acquire greater numbers of ballistic missiles
5 while simultaneously advancing technical sophistication to
6 defeat U.S. defense systems. In response, we must continue
7 to advance our missile defense capabilities and forces to
8 assure allies and deter adversary aggression.

9 We are managing the unified command plan elevation of
10 U.S. Cyber Command, which I fully support and engage with on
11 a daily basis. Meantime, we also remain engaged with the
12 Joint Staff and with United States Special Operations
13 Command as they assume primary responsibilities to previous
14 STRATCOM missions of joint intelligence, surveillance, and
15 reconnaissance and combating weapons of mass destruction.

16 U.S. Strategic Command is a global warfighting command.
17 All of our deterrent forces remain safe, secure, reliable,
18 and ready. The morale of the force is also very high. They
19 understand again the critical importance of our missions.
20 Nevertheless, the U.S. faces significant challenges in
21 sustaining the critical capabilities that underpin our
22 strategic deterrent. Our Nation's strategic capabilities
23 must be a core focus of our national security spending, and
24 I am sure that sustained congressional support, support from
25 this committee, combined with the hard work of the

1 exceptional men and women who support U.S. Strategic Command
2 will ensure we remain ready, agile, and effective against
3 both current and future threats.

4 So I look forward to engaging with you today and
5 throughout my time as the U.S. STRATCOM Commander. Thank
6 you for this opportunity, and I look forward to your
7 questions.

8 [The prepared statement of General Hyten follows:]

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1 Chairman McCain: General Hyten, as we discussed and
2 has been made well known, the Russians are in violation of
3 the INF treaty. Is that true?

4 General Hyten: Yes, Chairman, that is true.

5 Chairman McCain: And what does this mean for the
6 threat to the United States and our European allies?

7 General Hyten: It is a concern that we have to look at
8 across the entire spectrum of what Russia has been doing.
9 Russia has been modernizing their entire nuclear force.
10 They started an aggressive effort in 2006. They continue
11 that to this day. This breach of the INF Treaty that caused
12 the deployment of a ground-launched cruise missile is a
13 concern to us because we have not seen that for quite some
14 time. It is another element we are going to have to
15 consider as we look forward to how we deal with Russia.

16 Chairman McCain: How would we deal with the ground-
17 launched cruise missile itself?

18 General Hyten: A single ground-launched cruise missile
19 is not a significant threat to the United States or our
20 allies. It shows the beginning of a deployment of a
21 structure that could be a threat in the future.

22 Chairman McCain: If it is deployed in a significant
23 number, what does that do?

24 General Hyten: We have no defense for it, especially
25 in defense of our European allies. That system can range

1 and threaten most of the continent of Europe, depending on
2 where it is deployed. We will talk about that in detail in
3 the closed hearing tomorrow, Senator. But it is a concern,
4 and we are going to have to figure out how to deal with it
5 as a Nation.

6 Chairman McCain: There is certainly a compelling
7 argument for Vladimir Putin's disregard for most norms of
8 behavior that Russia, post Soviet Union, used to adhere to
9 or even during the Soviet Union times.

10 General Hyten: I believe that the United States has
11 only effectively dealt with Russia over the years from a
12 position of strength. I think the only way we can deal with
13 them in the future is from a position of strength. And I
14 think the work of this committee and the work of my command
15 can help that strength be established so we are in a good
16 position to have future discussions with the Russians.

17 Chairman McCain: It seems to me to regain that
18 position of strength, we need to give you some help. Is
19 that right?

20 General Hyten: Yes, sir. I am asking for help on
21 modernizing our entire forces and making sure we have the
22 force structure that is needed to make sure we can deter not
23 only today but in the future.

24 Chairman McCain: And what would be your priorities?

25 General Hyten: Senator, my priorities are, first, to

1 modernize the platform elements of the triad. I think when
2 you look across the force --

3 Chairman McCain: Which are?

4 General Hyten: The platform elements of the triad are,
5 first, the submarine, the Ohio class replacement program,
6 the Columbia. That is number one. The next is the GBSD,
7 the ground-based strategic deterrent, the replacement for
8 our Minuteman ICBMs. The third piece is the B-21 bomber,
9 which the long-range standoff weapon associated with that.
10 That is the replacement to the air-launched cruise missile.

11 The second piece of the puzzle is the modernization of
12 the nuclear weapons. The nuclear weapons themselves have to
13 be modernized so they can last well into the coming decades.

14 And finally, a very important piece that I am probably
15 most concerned about right now is the nuclear command and
16 control modernization that we have to have as we move into
17 the coming decades.

18 Chairman McCain: Under the present circumstances of
19 sequestration, do you see any way of achieving all those
20 goals?

21 General Hyten: Senator, if we do not get stable
22 budgets -- when I spread all those programs out across the
23 table -- and I have -- and I look at when they all deliver,
24 they all deliver just in time. Take one example. The
25 Columbia submarine. Every year that that program -- if it

1 slips 1 year, then the future commander of STRATCOM is down
2 one nuclear submarine. 2 years, two nuclear submarines. We
3 know that because there is a certain time in the future
4 where the Ohio class submarine just will not go under the
5 water anymore. Just the pressure on the vessel itself will
6 not allow it to go down. That has to stay on time. If each
7 of those programs delivers just in time and we do not have
8 stable budgets, we know we already have a broken program.
9 So I am very concerned about the ability to have stable
10 budgets to support those programs.

11 Chairman McCain: And what does a continuing resolution
12 do to you and your plans that you just outlined?

13 General Hyten: A continuing resolution makes it very
14 hard to start new programs, which many of these programs
15 will be new program starts. Each of these programs will
16 ramp up in terms of funding over the years as we move from
17 the development phase into a production phase. Every time
18 you have a continuing resolution, you cannot ramp up the
19 funding you need in order to do that. Every time that
20 happens, you have a delay to the program. Every time that
21 happens, you have a break to a contract. It is a very
22 significant issue in terms of cost to the taxpayers, as well
23 as risk to our national security.

24 Chairman McCain: And the men and women who are serving
25 under your command?

1 General Hyten: Yes, sir. I talked a while ago about
2 the improved morale. One of the great things I saw when I
3 came back to U.S. Strategic Command was the morale in the
4 submarines and the missile fields and the bombers and the
5 space capabilities, the cyber capabilities. They understand
6 how important it is what they do, but they also are dealing
7 with very old equipment. We have a commitment to them as a
8 Nation that we need to give them the tools that they need in
9 order to do their job. Their enthusiasm can only last a
10 certain amount of time. If we do not follow through on that
11 commitment, that morale will be brought into question.

12 Chairman McCain: Senator Reed?

13 Senator Reed: Well, thank you very much, Mr. Chairman.

14 Again, General, thank you for your service.

15 In last year's National Defense Act, we asked for a
16 review of all the options against our potential threats
17 left-of-launch and right-of-launch. And one of the issues
18 that I think you will talk about in detail tomorrow but in
19 public is the very little short time between a warning and a
20 launch in many of our adversaries. The left-of-launch is
21 something we have to look at. Right-of-launch, the first
22 issue is boost phase.

23 And can you give us an idea here of where we are with
24 respect to boost phase interceptors?

25 General Hyten: I can give more information in the

1 closed hearing tomorrow. But at a general level, we do not
2 have a significant or really any boost phase intercept
3 capability. It is a very challenging technology because you
4 basically have to be properly positioned with the right kind
5 of weapons capability in order to respond to an immediate
6 launch. If you look at the North Korean launch on February
7 the 11th, out of a new location, a new capability, a new
8 transporter, erector, launcher, all those things bring the
9 time of warning down to a very small number. So, therefore,
10 you have to be properly positioned.

11 Now, I will talk tomorrow about some new technologies
12 that are becoming available that I think can begin to
13 address that for the first time. But it is not in the near
14 term, Senator.

15 Senator Reed: But if we can pursue these technologies
16 successfully, it would provide a significant advantage given
17 the current deterrence we have.

18 General Hyten: Yes, Senator. I cannot think of a
19 better thing than if somebody launched a threat missile, to
20 drop it right back on their head.

21 Senator Reed: The nuclear posture review, as we both
22 noted, is underway. Can you give us kind of an overview of
23 the significant threats that this review will deal with and
24 illustrate for us?

25 General Hyten: So, the nuclear posture review just

1 kicked off a 6-month timing asked for by the administration
2 and the Secretary of Defense. So we are going at that. The
3 first thing we will look at is the threat scenario. We will
4 look at Russia, China, North Korea, and Iran in particular
5 to make sure we understand what those threats are. Iran is
6 in compliance with JCPOA right now, which is keeping that
7 nuclear capability down, but they still have aggressive
8 missile programs that we need to look at. So we will look
9 across that spectrum of the threat. We will look at what
10 Russia is doing in terms of violation of the INF treaty, and
11 then we will look at military options in order to respond to
12 what we see in the threat. That is the basic structure of
13 the nuclear posture review.

14 Senator Reed: One of the disconcerting comments that
15 the Russians continue to make is that they have a strategy
16 now of escalate to deescalate with nuclear weapons. And I
17 think you quite succinctly describe that escalate to
18 deescalate is not that. It is escalate to win, which forces
19 us to escalate to stop them from winning. You know, no pun
20 intended, but it is an escalator to catastrophe in my view.

21 So can you comment upon that statement? You know, how
22 do we deal with that?

23 General Hyten: So I think it is one of the most
24 challenging military questions you have. The good news is
25 that we are addressing it with our geographic combatant

1 commanders in large-scale exercises. We just did one with
2 the European Command. We will do one with the Pacific where
3 we actually address what those situations really would look
4 like. It is important that we look at them seriously,
5 understand what those pieces are. When we say escalate to
6 win, what does that really mean? And in order for us to
7 win, we have two choices: one, to prevent that escalation;
8 or two, respond in such a way after that escalation that
9 they would want to stop any aggression that they have going
10 on. Both of those are challenging situations, and we have
11 to walk through the various options, which we are.

12 Senator Reed: It would seem to me also that there has
13 to be some means to communicate to avoid sort of the
14 misstep, if you will. Is that part of the gaming you are
15 doing, kind of how do we communicate our intention not to
16 accept this but to engage again? Is that part of it?

17 General Hyten: I continue to advocate engagement. I
18 know Secretary Mattis has said we have had a long history of
19 engagement, not a long history of success. I certainly
20 agree with that statement. But, nonetheless, I would like
21 to have an aggressive State Department engagement, an
22 aggressive Department of Defense engagement that includes
23 mil-to-mil engagements with my counterparts in Russia, China
24 in particular. I think it is always better to be able to
25 pick up the phone and talk to somebody before something bad

1 really happens to have some kind of relationship. Also I
2 want to look across the table and make sure they understand
3 I am very serious about this business.

4 Senator Reed: Thank you very much, General.

5 General Hyten: Thank you, Senator.

6 Chairman McCain: Senator Inhofe?

7 Senator Inhofe: General Hyten, I think we would all
8 ask about the same questions that have been asked by the
9 previous two members, and it is always a surprise when
10 people find out that there is some question as to whether or
11 not we have the capability that we know around this table
12 and that you know we do not. You have said, of course --
13 you made it very clear we have the oldest nuclear arsenal in
14 the world, warheads and bombs produced 30-40 years ago, B-52
15 and all of that.

16 The last time the 10-year posture review took place,
17 there were assumptions. The chairman mentioned this in his
18 opening statement. One of the assumptions -- and this was
19 for the 2010. Number one, Russia is no longer an adversary,
20 and number two -- and this is kind of disturbing -- though
21 the role of nuclear weapons in the United States national
22 security and U.S. military strategy has been reduced
23 significantly in recent decades, further reductions can and
24 should be taken. How do you respond to those two
25 assumptions? Bring that forward to the current day.

1 General Hyten: So from a military perspective, I think
2 it is always important that anybody that has the threat to
3 fundamentally destroy your nation, which is what Russia and
4 China both have, they have to be considered an adversary. I
5 think not considering them an adversary causes you to make
6 decisions that could put the Nation at risk. Therefore, I
7 have always considered Russia to be an adversary, a
8 strategic competitor. I think it is important for us to
9 look at Russia that way.

10 The second piece of the equation. If you look back not
11 just to the 2010 nuclear posture review, but if you look
12 back 20 years -- and that is across multiple
13 administrations, multiple Congresses, change of leadership
14 in the military -- you see a fundamental de-emphasis of
15 nuclear weapons in our national security strategy. And then
16 look at what our adversaries have done in response to that.

17 I think the assumption would be if we lower the
18 reliance on nuclear weapons and our adversaries do the same
19 thing, they did just the opposite. Russia in 2006 started a
20 huge, aggressive program to modernize and build new nuclear
21 capabilities. They continue that to this day. New
22 ballistic missiles, new weapons, new cruise missiles,
23 significant air-launched cruise missile capabilities, now
24 the ground-launched cruise missile capabilities. China has
25 done the same thing. Hypersonic glide vehicles on both

1 sides that bring new threats to bear. Our adversaries have
2 taken the exact opposite view of our de-emphasis and have
3 emphasized those nuclear capabilities once again.

4 Senator Inhofe: That is right. They say further
5 reductions can and should be taken. That is where we have
6 been. It is very disturbing. I think tomorrow in a closed
7 session, you might be thinking about an answer to the
8 question because you say that Russia has always operated
9 from a position of strength. And we need to talk about the
10 relative strength between us and Russia.

11 The last thing I would mention is we have not spent
12 quite as much time that I feel would be justified with North
13 Korea. Admiral Gortney said it was prudent to assume -- now
14 this is a year ago -- that North Korea could conduct a
15 nuclear strike on the U.S. despite assessments of a very low
16 probability of success. Well, that has changed now I think.
17 They have advanced a long ways.

18 I think in your statement, North Korea are actively
19 developing ballistic missiles that could range the
20 continental United States, conducted a nuclear test in
21 September of last year, and appeared to be preparing to
22 conduct another test in the near future. It is very
23 disturbing.

24 If you were to look at Russia, China, and North Korea
25 and Iran, what would you believe would be the greatest

1 threat? What bothers you the most?

2 General Hyten: I think Russia is the greatest threat.
3 What I am concerned about most nights is North Korea because
4 we do have an effective deterrent today that I believe
5 deters our adversaries, and if you watch the way Russia
6 acts, every step is slow, but they are taking steps forward.
7 China. They are acting, but every step is measured. North
8 Korea. I am not sure exactly what they are going to do
9 tonight. Every time there is a launch, February 11th, March
10 the 5th this year, the whole network comes up. We bring the
11 entire power of my command to bear on the problem, the power
12 of Northern Command. We are looking at what we have to do.
13 The Pacific. They are all involved. Those are very
14 concerning moments to me because every time they launch, we
15 are not sure if this is a threat missile or not.

16 Senator Inhofe: Well, yes. I think you could probably
17 say that North Korea is different from the rest in that they
18 are totally unpredictable. Is that accurate?

19 General Hyten: They are. I guess totally
20 unpredictable would be a fair statement, sir, because every
21 time they launch, I am not sure what that launch is going to
22 be. That would be the definition of unpredictable.

23 Senator Inhofe: Thank you, General.

24 General Hyten: Thank you, Senator.

25 Chairman McCain: Senator Shaheen?

1 Senator Shaheen: Thank you, Mr. Chairman.

2 And thank you, General, for being here today.

3 I want to follow that line of thinking because in your
4 statement, you have been clear with us that our nuclear
5 capabilities are the foundation and the bedrock of our
6 defense. And certainly we saw that deterrence model during
7 the Cold War, and you talked about it just now in terms of
8 China and Russia. But do we have any reason to believe that
9 North Korea is deterred at all by our nuclear armaments?

10 General Hyten: I would have to say that they are
11 deterred to a certain extent because fundamentally the
12 existence of their nation is threatened by our strategic
13 deterrent capability. So there is a deterrent value.

14 But their actions clearly show that the deterrent is
15 fundamentally different when we think about North Korea.
16 What impacts Kim Jung-un, what impacts the North Korean
17 actions is a very difficult thing to understand, to get
18 after. But the thing about North Korea is that given where
19 it is on the globe, it is very important that our actions
20 are in line with our allies, especially South Korea and
21 Japan, because talk about in your back yard, it is in the
22 back yard of South Korea and Japan.

23 Senator Shaheen: And so as we look at what options we
24 have to respond to what North Korea is doing, clearly
25 sanctions are one, and we have imposed those and there is an

1 effort to look at even stricter sanctions. What other
2 options do we have in response to what North Korea is doing?

3 General Hyten: I think any solution to the North
4 Korean problem has to involve China. I am a military
5 officer. My job is to provide military options to the
6 President, and along with the other combatant commanders, I
7 will always have military options ready for the President if
8 he deems, in association with Congress, that there is
9 something that we have to do. I will provide those military
10 options. So that is my job.

11 But I look at it from a strategic perspective, and I
12 cannot see a solution that does not involve China.

13 Senator Shaheen: But China has suggested they do not
14 have as much influence as we think that they do. Do you
15 think that is accurate?

16 General Hyten: Again, if you talk about in your back
17 yard, China is the definition of North Korea's back yard.
18 So the trade that North Korea has really goes north across
19 the Chinese border and south from China into North Korea.
20 That is a significant element. But I am a military officer,
21 not a State Department official or an economic expert. But
22 I just look at the world and it is hard for me to see a
23 solution without China.

24 Senator Shaheen: You briefly touched on cybersecurity
25 in your opening statement. More and more we are seeing that

1 cyber is being used as a weapon by our opponents. I have
2 asked this question to several generals and have not gotten
3 a very clear answer about how we better coordinate our cyber
4 activities and whether we have a cyber strategy that
5 involves not just responding but also being aggressive about
6 how we use cyber. How should we be thinking about that?
7 And do you think that is an accurate assessment, or am I
8 missing something?

9 General Hyten: So I think it is still an element that
10 is the subject of significant discussion. So I will try to
11 clarify it from my perspective, and hopefully that is
12 helpful to you.

13 From my perspective, there are two elements of cyber.
14 One is the military element, and the other is the broader
15 civilian use of cyber. And they require two different sets
16 of authorities. But when I look at the cyberspace domain,
17 the authorities that I think we need as a nation are no
18 different than any of the authorities that we have in space,
19 and air and land and maritime. We need to have the
20 authorities that if there is a bad actor, a bad guy that is
21 in the cyberspace domain, the focus of our military has to
22 be to attack and eliminate the bad actor. But we cannot do
23 that in a way that impacts the domain that we are operating
24 in. But we should not be restricted on following that
25 actor, wherever that actor goes.

1 Senator Shaheen: Well, in fact, do we not have blurred
2 lines when it comes to cyber today because we have -- or at
3 least based on what I have read, it appears that we have
4 cyber actors that are doing the work for nation states, but
5 they may not be in the military. So how do we address those
6 kinds of threats?

7 General Hyten: So to me, if the question is what
8 effect are they trying to create, if the effect they are
9 trying to create is a military effect, then it is the
10 responsibility of U.S. Cyber Command to be able to respond
11 to that. If it is a criminal effect, it is not the
12 responsibility of Cyber Command. It is the responsibility
13 of the Department of Homeland Security, working with the FBI
14 and other elements to work with those kind of pieces. We
15 need to draw those lines clearly and focus on the effect and
16 the target not on the domain itself. When we just focus on
17 the domain itself, that is when we get all the confusion
18 because cyber is everywhere. Why should we stop a military
19 action because a server happens to be located in a specific
20 territory, including the United States? We have to look at
21 it as an operating domain. The effect and the target are
22 the key.

23 Senator Shaheen: Thank you very much.

24 General Hyten: Thank you, ma'am.

25 Chairman McCain: Senator Wicker?

1 Senator Wicker: General Hyten, thank you for your
2 service and for your testimony today.

3 Mr. Chairman, I would like to add into record at this
4 point an article in DOD News by Jim Garamone, published
5 March 31st of this year.

6 Chairman McCain: Without objection.

7 [The information follows:]

8 [COMMITTEE INSERT]

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1 Senator Wicker: General, in this article, you state
2 that we need to spend roughly 6 percent of the defense
3 budget to modernize our country's nuclear arsenal. That
4 would be an increase from 3.5 percent currently. Over what
5 period of time do we need to increase from 3.5 percent to 6
6 percent of the defense budget?

7 General Hyten: In broadest terms, it is 30 years, but
8 that is not perfectly accurate because there will be a peak
9 and a valley. So it will peak as we go into significant
10 production levels. That will happen in approximately 10
11 years. That production peak will continue for roughly
12 another decade as we deploy the new capabilities across each
13 of the platforms I discussed earlier. And then it will drop
14 off again over the last. But roughly, it is a 30-year time
15 frame.

16 Senator Wicker: Well, how about for the next few
17 years?

18 General Hyten: For the next few years, there will be a
19 significant plus-up, but it will not grow to 6.5 percent
20 until we actually get into the development programs, which
21 are a couple years away.

22 Senator Wicker: You quote approvingly the Air Force
23 Chief of Staff General Goldfein in this article. Is this a
24 position of General Goldfein?

25 General Hyten: That is the position of the United

1 States Air Force and General Goldfein and the Acting
2 Secretary Disbrow.

3 Senator Wicker: Is it the position, to your knowledge,
4 of the Secretary of Defense?

5 General Hyten: To my knowledge, the Secretary of
6 Defense supports -- I know he supports modernizing the
7 triad. He testified in front of this committee to that
8 effect. But we will address all those issues in the nuclear
9 posture review with the new administration. Just to
10 emphasize that point again, I think it is a point to
11 remember. The new administration will take a look at the
12 entire threat posture, the entire modernization plan, but
13 the Secretary of Defense, the Air Force leadership, and the
14 Navy leadership have all pledged support to modernizing the
15 triad.

16 Senator Wicker: Now, in mentioning your priorities in
17 response to an earlier question, you mentioned five
18 priorities in modernization, and the first one you mentioned
19 was submarines, the Ohio replacement or the Columbia class.
20 So I was interested to see that you listed that first.
21 Would it be correct to say that not only is the first thing
22 you mentioned, but it is your first priority?

23 General Hyten: So the first priority is the triad.
24 Inside the triad, the first priority is the submarine. But
25 it is important to note that the triad as a whole has to be

1 modernized. Nonetheless, if we do not get after the
2 submarine, then we run a very precipitous risk in about a
3 decade as the Ohio class reaches end of life.

4 Senator Wicker: That was going to be my next question.
5 You painted a painted a pretty grim picture of the future of
6 the Ohio class if we do not start moving. And I think you
7 said that it will be dangerous to actually put it under the
8 water.

9 General Hyten: You can probably tell from my uniform I
10 am not a naval officer.

11 Senator Wicker: I do see that.

12 General Hyten: But I do have good friends who are
13 naval officers, who are submariners, and they have gone
14 through the analysis with me in detail, including my deputy,
15 Vice Admiral Chas Richard. We have gone through that in
16 detail, and they can tell me that each submarine is built to
17 go down under pressure a certain number of times, and once
18 you reach the end of life, you know when that is and you can
19 predict very accurately when that is. And once you reach
20 the end of life, it cannot go down anymore. A submarine on
21 the top of the water is not an effective deterrent.

22 Senator Wicker: And that end of life might occur as
23 soon as when?

24 General Hyten: It starts towards the end of the next
25 decade. I can go into the details of when that would be in

1 the closed hearing tomorrow, but it is towards the end of
2 the next decade.

3 Senator Wicker: What can you tell us in this venue
4 today about the modernized features of this new Columbia
5 class submarine?

6 General Hyten: I think the most significant element of
7 the modernized feature is the actual nuclear reactor. The
8 nuclear reactor on the Ohio class systems basically required
9 refuel and refit midway through its service life. The
10 Columbia class will have a 42-year reactor. So once it goes
11 in service, besides the normal maintenance and routine
12 servicing, it will not have to come back for a refueling of
13 the reactor, which will allow us to operate with 12 Columbia
14 submarines versus 14 of the Ohio class.

15 Senator Wicker: What about advanced materials in these
16 new subs?

17 General Hyten: There will be significant advanced
18 materials, but I cannot talk about that in detail in this
19 hearing. But it will be materials that will increase the
20 survivability and performance of the submarine in a threat
21 environment.

22 Senator Wicker: Thank you, sir.

23 Chairman McCain: Senator Kaine?

24 Senator Kaine: Thank you, Mr. Chair.

25 Thank you, General Hyten.

1 For the hearing last year, this posture hearing, the
2 written testimony had this quote in it. There is continued
3 adherence to the new strategic arms reduction, New START, by
4 both nations. That is a quote, and that meant the U.S. and
5 Russia. Is that still the case?

6 General Hyten: That is still the case, Senator. The
7 next key date is 2018. That is when we have to meet the New
8 START limits. We are on track to do that. As far as we can
9 tell, the Russians are on track to do that. But that 2018
10 date, early 2018, we will watch that very closely.

11 Senator Kaine: That testimony was also in the
12 testimony from last year. We are on track to achieve New
13 START limits of 1,550 deployed warheads and 700 deployed
14 delivery systems by February 2018. And as far as you know,
15 we are on track and the Russians are on track for their
16 obligations as well.

17 General Hyten: I know we are on track, and the reports
18 I get from the intelligence community and from the State
19 Department is the Russians are on track as well.

20 Senator Kaine: Have you been directed to review the
21 agreement or in any change our plans for compliance with the
22 agreement?

23 General Hyten: I have not been directed to review the
24 New START agreement. I am reviewing the INF agreement based
25 on the recent --

1 Senator Kaine: Russian activity.

2 General Hyten: Russian activity.

3 Senator Kaine: But in terms of compliance with the New
4 START agreement, you have not been directed to review or
5 offer advice about changing strategies on compliance with
6 New START.

7 General Hyten: No specific direction on that, Senator.

8 Senator Kaine: In your opinion, would it be in the
9 U.S.'s strategic interests to increase our nuclear weapons
10 stockpiles?

11 General Hyten: I have stated on the record multiple
12 times -- I will state it on the record again today -- I
13 support the limits that are in the New START treaty. I also
14 look out to the future and understand there are non-
15 accountable weapons especially in the Russian side that we
16 need to start addressing. But from a strategic weapons
17 perspective, I support the limits that are in the New START
18 treaty.

19 Senator Kaine: Senator Wicker was asking you about the
20 Columbia class. Will the Columbia class require a change in
21 the design and plans for the Trident missile, kind of a
22 design change?

23 General Hyten: It will not require a design change.
24 We will be able to walk into that. But Admiral Terry
25 Benedict, the Director of Strategic Programs in the Navy,

1 has begun to look at the Trident to make sure that we have a
2 plan for how we would modernize that capability sometime in
3 the future. But that is not on the near term list or on my
4 priority list to worry about right now.

5 Senator Kaine: Thank you for that.

6 You have a brief section of testimony at page 13 of
7 your written testimony about cyber. I applaud the direction
8 signed into law in the fiscal year 2017 National Defense
9 Authorization Act and remain committed to the elevation of
10 U.S. Cyber Command to a unified command as soon as possible.

11 Could you talk a little bit about what is the status of
12 efforts to do that? Are there milestone dates that have
13 been set, and what is our progress towards those milestones?

14 General Hyten: Admiral Rogers, the Commander of U.S.
15 Cyber Command -- we have submitted our plan to the
16 administration. It is now going through their evaluation.
17 The administration gets a vote. The Secretary of Defense
18 gets a vote. I will just say that both Admiral Rogers and I
19 would like that to happen sooner rather than later just to
20 normalize that command and make sure that we can kind of
21 develop normal command relationships between Cyber Command
22 and all the combatant commanders, including U.S. Strategic
23 Command.

24 Senator Kaine: And this is a consensus set of
25 recommendations that you have delivered to the

1 administration.

2 General Hyten: We have.

3 Senator Kaine: The last question is this. Anti-
4 access/area denial systems are more commonplace now. Does
5 that render weapons like the B-61 sort of becoming obsolete,
6 and is there a need for additional systems like gravity
7 bombs as part of a future deterrent to take care of the
8 A2/AD systems?

9 General Hyten: I think from the air perspective of the
10 triad, the three elements: a stealth bomber, which is the
11 B-21 that can penetrate air defense systems; a gravity bomb
12 that could provide flexible options because that provides
13 the most flexible element of the triad because that gives
14 the President the most time to make a decision; and then the
15 air-launched cruise missile, which basically improves the
16 flexibility of the B-21 because really the last thing you
17 want to do is have a bomber that is only able to attack a
18 target right below it. You want it to be able to reach out.
19 So those three elements together create the most flexibility
20 in the air leg of the triad, and that is our recommended
21 program that the Congress has supported.

22 Senator Kaine: Thank you.

23 Thank you, Mr. Chair.

24 Chairman McCain: Senator Fischer?

25 Senator Fischer: Thank you, Mr. Chairman.

1 Welcome, General. It is a pleasure to see you again.

2 We have had some discussion on this in previous
3 questions about the different geopolitical landscape that we
4 are living in today, and some describe it as a return to the
5 great-power competition. Russia and China are deploying far
6 more capable nuclear systems than they were in 2010.

7 What implications do you think that this has on our
8 nuclear forces? And specifically, do you believe it
9 increases their importance and the need to modernize them?
10 You have touched on this, but I would like to hear your firm
11 answer.

12 General Hyten: So the key element is always having a
13 ready, reliable strategic deterrent. And we have that
14 today. So even though our adversaries have modernized their
15 nuclear capabilities, we still have an effective deterrent.
16 The question will we have an effective deterrent 10 years
17 from now and 20 years from now. The answer to that has to
18 be yes. That is why we have to modernize, and that is why
19 it has to be a significant priority for this country.

20 Deterrence is going to be expensive, but war is always
21 more expensive than deterrence.

22 Senator Fischer: The chairman asked you about the
23 platforms and the need to modernize those. And you were
24 referring to the B-1 and the GBSD, the LRSO, the Columbia
25 class, and the need to continue on and meet those deadlines

1 and meet them in a timely manner to make sure that we do
2 have the resources necessary.

3 When we look at the new posture report that is going to
4 be coming out, do you believe that that report should
5 validate those programs?

6 General Hyten: I do, and I have stated that to the
7 administration. I have stated that to my boss. But the
8 nuclear posture review should look at the entire enterprise.
9 It should also look at things beyond what is in the triad.
10 We should look at what do we have to do to respond to the
11 INF breakout. What do we have to do to respond to now a
12 ground-launched cruise missile? Hypersonic glide vehicles
13 are threats that both Russia and China are building now.
14 They are very significant in terms of our ability to see
15 them and provide warning. We need to figure out how to deal
16 with those. But I think the baseline is the triad, and the
17 baseline is modernizing the triad.

18 Senator Fischer: And in response to Senator Inhofe,
19 you were talking about the escalate/deescalate in our
20 relationship with Russia. And a former Secretary of Defense
21 Harold Brown said in 1979 that the Soviet spending has shown
22 no response to U.S. restraint. When we build, they build.
23 When we cut, they build.

24 From your comments, I would assume that you agree with
25 those remarks from Secretary Brown.

1 General Hyten: Well, I look at the evidence, and the
2 evidence is when we de-emphasize nuclear weapons, both our
3 primary adversaries, Russia and China, have both increased
4 their focus on nuclear weapons. Advanced capabilities.
5 They also looked at now threatening space and threatening
6 cyberspace. They went a significant direction and a
7 different deterrent element than we did. So I believe you
8 always have to look at your adversaries and understand what
9 they do and then make sure you are in a position of strength
10 relative to your adversaries. That is what deterrence is
11 all about.

12 Senator Fischer: The chairman also asked you about
13 Russia's violation of the INF treaty. Do you believe that
14 we need to respond to that violation? The previous
15 administration talked about counterforce options and
16 countervailing capabilities, active defenses, but ultimately
17 took no action to develop those. Do you think that we need
18 to now?

19 General Hyten: I think every step that Russia takes
20 has to be responded to. This is just the next step, and we
21 have to figure out as a Nation how to respond. It is not
22 necessarily a military response, but the Nation has to
23 figure out how to respond.

24 Senator Fischer: And in this setting, can you tell us
25 which options you believe would be the most effective?

1 General Hyten: No, ma'am, not in this setting. Those
2 choices are my boss' choices as well. But I will be glad to
3 talk to that in a closed hearing tomorrow.

4 Senator Fischer: Thank you.

5 In your opening statement, you note the unauthorized
6 flights of unmanned aerial systems over Navy and Air Force
7 installations. Can you discuss this in greater detail? And
8 are these incidental activities, or do you believe they are
9 deliberate actions?

10 General Hyten: So I think so far they have been
11 incidental activities, but the fact that they are occurring
12 and then if you watch what is happening overseas in the
13 CENTCOM theater with the use of lethal UAVs and the use of
14 UAVs for surveillance on the part of a terrorist adversary,
15 I am very concerned that those same kind of UAVs could be
16 employed against our weapon storage facilities, especially
17 on the nuclear weapon storage facilities.

18 So just in the last week, I have signed out guidance to
19 my forces to give them kind of parameters on how they should
20 respond if they see a threat UAV or a surveillance UAV and
21 to give them specific guidance. So a young marine at King's
22 Bay or an airman at F.E. Warren does not have to worry about
23 what should I be doing when I see that. So I provided very
24 specific guidance that is classified guidance, but I would
25 be glad to share that with the committee.

1 Senator Fischer: Thank you, sir.

2 Chairman McCain: Senator Warren?

3 Senator Warren: Thank you, Mr. Chairman.

4 And thank you, General Hyten, for your leadership and
5 for your generosity with your time yesterday visiting my
6 office.

7 I just quickly want to ask you about the importance of
8 our non-military foreign assistance and other civilian
9 instruments of national power to your mission. General, is
10 it accurate to say that you work with the State Department
11 and other civilian partners on nuclear nonproliferation and
12 other efforts to detect and deter strategic threats to the
13 United States?

14 General Hyten: We have a very active role with the
15 State Department not just on the nuclear side but on space
16 and cyber as well because each of those is a very
17 international set of issues, and the State Department has
18 been very aggressive in working those issues along with U.S.
19 Strategic Command and the other combatant commands as well.

20 Senator Warren: Thank you.

21 And the budget proposal put out by the Trump
22 administration calls for about a 29 percent cut to the State
23 Department and significant cuts to other agencies with
24 international responsibilities.

25 General, I want to ask you a narrower question. Would

1 funding cuts to agencies that conduct diplomacy and other
2 civilian functions make your job easier or more difficult?

3 General Hyten: So I am not an expert on the budgets --

4 Senator Warren: I am not asking you to be one.

5 General Hyten: But I can tell you that I feel I
6 desperately need and all the military commanders need an
7 active foreign engagement process that uses the Department
8 of State. We need that kind of partnership. We need the
9 State Department reaching out into the international
10 community. It cannot be left to the military to do those
11 kind of pieces. The State Department does. I have had
12 great relationships with men and women in the State
13 Department that have helped us significantly over the years.
14 We need to have that continue into the future, as well as
15 other departments that reach out.

16 Senator Warren: And I take it from what you are saying
17 -- I am sorry to interrupt, but I just have limited time
18 here -- that significant cuts would make it more difficult
19 for you to do your part of your job.

20 General Hyten: I would have to look at where the cuts
21 are, and I have not looked at where the cuts are. But I
22 need that support.

23 Senator Warren: You need that support.

24 So let me ask you another question, General. As you
25 know, the nuclear command, control, and communications, NC3,

1 system is critically important to providing secure and agile
2 communications between our field forces and the President in
3 case of a nuclear attack or other nuclear-related emergency.
4 And you expressed concern before this committee last year
5 about the aging capabilities of the NC3 system and the need
6 to modernize it. And as Chairman McCain noted earlier, you
7 publicly said just last month that, quote, any delay,
8 deferment, or cancellation of NC3 modernization will create
9 a capability gap potentially degrading the President's
10 ability to respond appropriately to a strategic threat.

11 I assume you still feel that way. Is that right?

12 General Hyten: I do. It is my biggest concern on the
13 modernization effort.

14 Senator Warren: Biggest concern.

15 So let me ask you, are you confident that the
16 Department is providing the funding and staffing necessary
17 to keep NC3 on track?

18 General Hyten: I am confident that the Department has
19 taken the right steps. The funding is now rolling in the
20 right place. The staffing is not quite there yet,
21 especially on the Air Force side. We had a hiring plan that
22 was delayed slightly by the hiring freeze. We were given
23 authority to waive that for critical nuclear missions. We
24 have done that through the Air Force. The Air Force is now
25 beginning to hire those folks.

1 But the challenge is once you start hiring those
2 people, it is not like overnight that all of a sudden the
3 problem is solved. They have to come on board, become
4 experts. That takes a matter of time. So even though the
5 funding is flowing, we have a good plan, people are coming,
6 it is not an overnight solution to the problem which is why
7 it requires constant attention.

8 Senator Warren: I appreciate that.

9 We need to have a secure and reliable NC3 capability,
10 which is why I agree that NC3 modernization without delay
11 should be a top priority. We have the most potent nuclear
12 triad on earth, but it becomes much less useful if NC3 ages
13 out and does not work effectively.

14 I have just under a minute left, but I would like to
15 ask you very briefly about the resiliency of the satellite
16 constellations that we rely on for civilian and military
17 communications. Do you have confidence in the ability of
18 our communications satellites to withstand jamming? And how
19 are you thinking about integrating our satellites into the
20 Department's overall operational plan?

21 General Hyten: So I have not been happy with how we
22 are structured from a resilient perspective with satellite
23 communications. So there are two elements. Number one, I
24 think we need to change our architectures and build a more
25 resilient architecture so that we can more effectively fight

1 in the future. And the second piece of that is that we have
2 to figure out how to use the capabilities we have today in a
3 better way. We have actually built significant anti-jam and
4 warfighting capability into many of our satellites, but we
5 do not have the means to effectively command and control it
6 at the time of a fight. We need to work both of those
7 things, Senator, in the future.

8 Senator Warren: Thank you, and we can do more follow-
9 up on this later. Thank you.

10 Thank you, Mr. Chairman.

11 Chairman McCain: Senator Rounds?

12 Senator Rounds: Thank you, Mr. Chairman.

13 General Hyten, first of all, thank you for your service
14 to our country.

15 In the Defense Science Board's February of 2017 task
16 force report on cyber deterrence, two recommendations are
17 provided to improve the cyber resilience of the U.S. nuclear
18 forces. One recommendation was that the Secretary of
19 Defense direct you to conduct an annual assessment of the
20 cyber resilience of the U.S. nuclear deterrent, including
21 all essential nuclear components. These would include
22 nuclear command, control, and communications, as Senator
23 Warren was alluding to, the platforms, the delivery systems,
24 and the warheads. Specifically, you would be directed to
25 state your degree of confidence in the mission assurance of

1 the nuclear deterrent against a top tier cyber threat.

2 What do you consider to be a top tier cyber threat to
3 our Nation's nuclear systems?

4 General Hyten: So I see a top tier cyber threat being
5 Russia and China in particular because they have the ability
6 to threaten the existence of this Nation. And so one of the
7 reasons you have to be able to protect the nuclear command
8 and control capability is that is fundamental to deterrence.
9 If that is ever brought into question, that lowers our
10 deterrent posture to top tier threats, and we have to make
11 sure we never allow that to happen.

12 Senator Rounds: What can Congress do to help you
13 mitigate this threat to our nuclear systems?

14 General Hyten: I think the Congress can be very
15 demanding of the services to make sure that as we modernize
16 our nuclear command and control capability, we just do not
17 modernize a 20th century architecture, in other words, move
18 from 8 and half inch floppy disks to 5 inch floppy disks.
19 That is really not of interest. We have to modernize the
20 entire architecture. And so as you see the modernization
21 plans coming in, make sure, number one, it is a 21st century
22 information architecture, and number two, make sure that we
23 are cyber secure as we go through that because we will
24 introduce cyber vulnerabilities as we walk into that. But
25 if you work it right from the beginning, you can make sure

1 that that threat is mitigated as we go forward.

2 Senator Rounds: The Defense Science Board also
3 recommended that the DOD acquisition executive oversee
4 immediate establishment of a program of action with
5 milestones to support cyber certification of U.S. nuclear
6 forces, as well as nuclear command, control, and
7 communications. This certification process would assume
8 considered adversary attack against nuclear systems based on
9 extensive preparation. Examples are attacks via the supply
10 chain, insider threats, and physical sabotage or attack, in
11 addition to remote cyber attacks.

12 Are you confident that the timeline for initial and
13 full operational capability of the cyber mission teams that
14 are tasked to support your command are proceeding at a pace
15 that would enable you to meet such a certification? I
16 noticed that you indicated that perhaps the Air Force is a
17 little bit behind in their time frame.

18 General Hyten: So the answer is yes and no, Senator.
19 Yes, I am happy with where the cyber mission force is going
20 right now, but the no part is that I do not think the cyber
21 mission force currently has the capacity necessary to meet
22 all of the requirements that we have across the Department.

23 We have also divided the cyber mission force, you know,
24 assigned to different combatant commanders. So I have
25 certain assigned elements of the cyber mission force.

1 General Scaparrotti does. Admiral Harris does. I think we
2 have to start looking at cyber like we look at special
3 operations, as a high-demand, low-density element that we
4 need to allocate to the highest priority, and we have to
5 look at that from the top level down. And I will work
6 inside the Department to advocate for those kind of
7 capabilities because the demand signal is going to go
8 nowhere but up and the capacity is not sufficient to meet
9 all of the demand.

10 Senator Rounds: As you know, until now, DOD has
11 envisioned a force of up to 100 combat-coded B-21 bombers.
12 I am very concerned this number may be a budget rather than
13 strategy-driven determinative. Also I have heard discussion
14 within the Air Force circles of the need for a larger number
15 of these aircraft based purely on operational requirements.
16 Do you think we may need more than 100 of these aircraft?

17 General Hyten: So I have not seen the bomber vector
18 road map yet from the Air Force. I put a demand signal out
19 from my command to the Air Force to let me see that plan
20 because I want to be able to support that plan, but I have
21 to see it. I have to see the details to understand it.

22 From the top level, I think 100 is sufficient from an
23 operational perspective, not a budget perspective. And the
24 reason I think it from a top level is that I have a certain
25 requirement in the New START for a certain number of nuclear

1 capable bombers, and then we have an additional capacity on
2 the conventional side. And when you put that together, you
3 come to about 100.

4 Nonetheless, I have not seen the details yet from the
5 Air Force. I will see the details shortly. I know it is
6 done. General Rand and General Goldfein have both told me
7 it is about done. But I need to see that so I can better
8 answer that question, Senator.

9 Senator Rounds: Thank you, General.

10 Thank you, Mr. Chairman.

11 Chairman McCain: Senator Peters?

12 Senator Peters: Thank you, Mr. Chairman.

13 And, General Hyten, thank you for being here. Thank
14 you for your leadership as well.

15 General Hyten, in your response to advance questions
16 that you submitted to this committee last September, you
17 agreed that additional analysis is needed before making a
18 decision on whether to deploy an additional missile defense
19 site, including an analysis of the missile threat
20 specifically from Iran. You have also indicated that you
21 believe the response to missile threats must consider,
22 quote, the entire package of capability from additional
23 interceptors to supporting sensors and command and control.

24 In your testimony today, you identify three necessary
25 missile defense upgrades including upgrading the kill

1 vehicle of ground-based interceptors, continued development
2 of long-range discriminating radar, and improving regional
3 missile defense capabilities. And I understand that some of
4 these investments would improve a potential additional
5 missile defense site. It would also be a part of that
6 package and may make sense to make that investment.

7 But in a March of 2015 briefing to the Subcommittee on
8 Strategic Forces, Lieutenant General Mann, former Commander
9 of the U.S. Army Space and Missile Defense Command, affirmed
10 that the ground-based mid-course defense system remains our
11 Nation's only defense against an ICBM attack.

12 So without making a judgment -- the question is without
13 making a judgment on deploying an additional missile defense
14 site -- I do not expect that today. But if the decision is
15 to deploy a new missile defense site, how long do you expect
16 that construction would take? How long would it take to
17 come online?

18 General Hyten: So the specific question is once you
19 make a decision on an additional site, you are many years, 5
20 to 10 years, away from that site being able to come online.

21 So based on my confirmation hearing and my lack of full
22 depth into it, I met with Admiral Sering, the Director of
23 the Missile Defense Agency a few times now. We have gone
24 through his programs. We can talk about that in a little
25 more detail in the closed hearing. But fundamentally I see

1 a need to have a reliable kill vehicle, a multi-object kill
2 vehicle, better sensors, including a space-based layer for
3 the mid-course discrimination, and then additional capacity.

4 But I want to make sure that those priorities are
5 understood to the committee because those priorities are
6 important to me because if we just go for the additional
7 capacity, I am not sure we are going to be making the right
8 architectural decisions about how we deal with the pending
9 threat in the future. I want to make sure we do that right.
10 And we have some time, not a lot of time, but we have some
11 time to make those decisions.

12 We will have a ballistic missile defense review in this
13 administration in addition to the nuclear posture review.
14 That will be another 6-month study that is not yet to kick
15 off but will soon.

16 Senator Peters: I want to expand a little on the "some
17 time." So as you mentioned, you have to make the decision
18 first to go forward with the site, but then you are looking
19 to anywhere from 5 to 10 years before that site actually
20 becomes operational. And my concern is that if we wait
21 until a country like Iran, for example, develops missiles
22 that threaten the homeland, we may be too late given that
23 long timeline. That is why I know the work on an
24 environmental impact study for potential sites is already
25 underway.

1 But maybe your assessment -- are you confident that
2 even if we started today, over 5 years or the 10 years, we
3 would be able to construct these sites, that the missile
4 threat from Iran and elsewhere will not continue to grow or
5 eventually outpace our ability to bring these defenses
6 online?

7 General Hyten: So I am always concerned about
8 timelines because our acquisition system has not been very
9 effective in the last 10 years in delivering things on time.
10 So when I give broad statements like 5 to 10 years, it is
11 broad because the acquisition system is not very reliable in
12 terms of defining what those pieces are. It is broad
13 because there are policy debates that have to happen. But I
14 think we are going to have to make that decision pretty soon
15 about where we are going to go.

16 I think we have the data we need, and we will feed that
17 into the ballistic missile defense review. And I would
18 expect coming out of the ballistic missile defense review
19 some very specific recommendations about what we have to do
20 that will probably come from the Missile Defense Agency.

21 Senator Peters: Thank you, General.

22 General Hyten: Thank you.

23 Chairman McCain: Senator Ernst?

24 Senator Ernst: Thank you, Mr. Chair.

25 And thanks for your testimony today, General Hyten. I

1 appreciate your candid comments, the comments that we had in
2 our discussion yesterday in the office. And I am grateful
3 that we can have an open session so the folks in the Midwest
4 can hear how important STRATCOM is to our global safety.
5 And the fact that STRATCOM is only 45 minutes from my
6 hometown of Red Oak makes it even that much more important
7 to the folks living in southwest Iowa. So I look forward to
8 hearing more on your answers today.

9 We did talk a little bit about the Emerging Threats and
10 Capabilities Subcommittee that I chair. And I do appreciate
11 your comments about STRATCOM and its contribution to
12 developing the third offset strategy. That is very
13 important in our discussions in that subcommittee.

14 And yesterday in the meeting, you highlighted the need
15 to also incorporate the concept of operations associated
16 with the third offset strategy as we look towards defining
17 it. From our nuclear triad to the stealth capabilities, it
18 is vital to national security that the United States
19 continues to stay ahead of its adversaries. And you have
20 talked about a number of those today.

21 Can you explain the importance of developing a third
22 offset strategy specifically as we watch our adversaries
23 develop capabilities that match our own?

24 General Hyten: So I think the third offset strategy in
25 its most simple terms is what is the next fundamental step

1 that we have to take as a Nation to jump ahead of our
2 adversaries. That is what the first two offsets basically
3 were when you look back in time. I think the opportunity we
4 have right now is how do we fundamentally change the human-
5 machine interface. How do we change the whole command and
6 control structure? How do we actually get to new
7 capabilities?

8 But as we look at these technologies and we look at the
9 technologies both in Silicon Valley and Cambridge and a
10 number of places where the Department of Defense is
11 engaging, we have to put that in an operational context.
12 You just cannot take a commercial technology and say, boom,
13 there is your magic third offset. You have to figure out
14 what is the operational construct that we are going to use
15 in order to do that.

16 In space, the Deputy Secretary of Defense has said that
17 the interagency space operations center, which we just
18 renamed the National Space Defense Center, so that everybody
19 can understand finally what it is -- it is a national space
20 defense center -- was the first operational element of that
21 because basically we put a bunch of smart people in the room
22 with a bunch of capabilities and said figure out how to go
23 faster. And it is amazing how fast they have been able to
24 go when you break down all the barriers. This Nation can go
25 fast. That is what the third offset is really about.

1 But our acquisition process likes to go slow. So that
2 will be the challenge. How do we go fast in defining what
3 the third offset is? How do we define those things and
4 build them quickly, how to deploy it in the force to stay
5 ahead of our adversaries and not become too bureaucratic
6 about the next step?

7 Senator Ernst: I appreciate that.

8 And you mentioned breaking down the barriers. And we
9 had a great conversation, a little off topic, but a great
10 conversation about acquisition yesterday in the office. And
11 do you think our failing acquisition system is impacting our
12 ability to develop and procure the new technologies that are
13 necessary for that third offset?

14 General Hyten: I think the challenge that we have is
15 it is not the people that do the acquisition. They are
16 still spectacular people. But we have not delegated them
17 the authority and responsibility, and we do not hold them
18 accountable for making the decisions to deliver
19 capabilities. All those decisions are brought up into this
20 town into the Pentagon, into the Capitol, and it hurts the
21 ability of a program director to actually make the
22 decisions, work with the industry, and deliver those
23 capabilities. They spend all their time trying to get a
24 program through the Pentagon, not trying to deliver the
25 capability we need as a Nation. I think fundamentally we

1 have to change that focus to let those great people that do
2 that business every day focus on delivering those
3 capabilities and then hold them accountable because I grew
4 up in that business as a young lieutenant and a captain and
5 my bosses were held accountable. And there were some
6 spectacular failures. But I always remember there are 10
7 people in line to step and take those jobs because they
8 wanted the authority and responsibility.

9 Senator Ernst: I absolutely agree, and I think that is
10 something that this committee should work on. Thank you,
11 General Hyten, for your time.

12 Thank you, Mr. Chair.

13 Chairman McCain: Senator Blumenthal?

14 Senator Blumenthal: Thanks, Mr. Chairman.

15 I know that you recently toured the 37th Helicopter
16 Squadron at Warren Air Force Base, and my question really
17 concerns the fleet that protects the ICBM fleet and the
18 national capital region. In early February, the Air Force
19 announced their anticipated request for proposal for the
20 Huey replacement program -- as you know, that was to be
21 released at the end of February -- would not occur until
22 this summer because none of the companies offering a
23 replacement helicopter were able to meet all the threshold
24 requirements. The Huey replacement program has been
25 discussed in some form or fashion since, I think, 2001. The

1 most recent acquisition strategy had the first operational
2 helicopter delivery scheduled for the first quarter of
3 fiscal year 2020, and it is now another year delayed by Air
4 Force estimates to the second quarter of fiscal year 2021.

5 In my view, we can ill afford this kind of delay. I
6 have written numerous letters to the previous administration
7 urging that they expedite this replacement.

8 Do you have any opinions as to what can be done to
9 expedite this program? Do you agree that it should be
10 expedited I guess is the first question.

11 General Hyten: So of all the things in my portfolio, I
12 cannot even describe how upset I get about the helicopter
13 replacement program. It is a helicopter, for gosh sakes.
14 We ought to be able to go out and buy a helicopter and put
15 it in the hands of the people that need it, and we should be
16 able to do that quickly. We have been building combat
17 helicopters for a long time in this country. I do not
18 understand why the heck it is so hard to buy. I wrote the
19 requirements document for that helicopter when I was
20 Director of Requirements at Air Force Space Command in 2007,
21 and now it is 2017, 10 years later, and we are still arguing
22 about a helicopter.

23 We had a request for forces in to provide a temporary
24 replacement. I pulled that request for forces from STRATCOM
25 because I want all hands on deck to get a new helicopter

1 into the force that we should -- as soon as possible. All I
2 can tell you, Senator, as the Commander of Strategic
3 Command, I will put every influence I can on the United
4 States Air Force to deliver that capability sooner rather
5 than later. And I cannot tell you how upset I was when I
6 pulled the RFF and shortly thereafter was told that there
7 would be a delay in the program. That is just unacceptable
8 to me.

9 Senator Blumenthal: Well, your very forthright and
10 valuable response has just eliminated a whole line of
11 questions that I was going to have for you.

12 [Laughter.]

13 Senator Blumenthal: But I do have one more question
14 which concerns the Columbia class.

15 And by the way, very seriously, I welcome your focus on
16 this issue, and if there is anything I can do or I hope the
17 committee can do -- I do not mean to speak for the
18 committee, but it is a simple but profoundly important
19 problem to safeguard the ICBMs in the north capital region.

20 General Hyten: Hugely important.

21 Senator Blumenthal: Thank you.

22 On the Columbia class, are you satisfied with the pace
23 of development of the Columbia class, which is so important,
24 as you mentioned earlier, to the triad program?

25 General Hyten: I am. I am very appreciative of the

1 United States Navy for making it the number one program in
2 the United States Navy. I certainly agree with that
3 priority. But there are a lot of challenges in the Navy
4 portfolio, and the fact that they have made that the number
5 one priority and the fact that the Chief of Naval
6 Operations, Admiral Richardson, is going to be looking at
7 that very closely gives me confidence that we will get
8 there.

9 Nonetheless, we require a stable budget, stable
10 funding, aggressive approach by the United States Navy in
11 order to do that. All those things are challenging in
12 today's environment. But I am comfortable with where the
13 Navy is right now.

14 Senator Blumenthal: Thank you very much.

15 Thank you, Mr. Chairman.

16 Chairman McCain: Senator Cotton?

17 Senator Cotton: I would like to associate myself with
18 the remarks of Senator Blumenthal on the helicopter program.
19 And I appreciate that you take the issue so seriously,
20 General.

21 Some claim that the long-range stand-off cruise
22 missile, a new air-launched cruise missile, would be
23 destabilizing. Do you believe the LRSO would be
24 destabilizing, and if so, why? If not, why not?

25 General Hyten: Senator, I do not believe it is

1 destabilizing. I believe it is a critical element of our
2 architecture. We have had air-launched cruise missiles,
3 nuclear cruise missiles since 1960. The current fleet was
4 first declared operational in 1981. An element of our
5 architecture that our adversaries have significant numbers
6 of like and modernized air-launched cruise missiles that can
7 bring a threat to the United States tells me that we have to
8 be able to have that capability as we look to the future.
9 So I do not believe it is destabilizing. I think it is a
10 critical element of the architecture, and it has been an
11 element of the architecture for many, many decades.

12 Senator Cotton: So your recommendation is that we
13 proceed with an LRSO program.

14 General Hyten: I think it is essential to the
15 modernization of the triad.

16 Senator Cotton: You touched briefly earlier on the
17 concept of having a stealth aircraft that has to be directly
18 over the target. You are referring to the B-21 I presume.

19 General Hyten: Yes, sir.

20 Senator Cotton: And without a new air-launched cruise
21 missile, you foresee a future in which that B-21 might have
22 to penetrate into advanced air defenses rather than being
23 able to use a stand-off cruise missile?

24 General Hyten: So I can show you the details tomorrow.
25 I will bring a map tomorrow to show you why we need a mix of

1 capabilities, B-21, gravity bombs, as well as the air-
2 launched cruise missiles, so you can see the details. But
3 those three elements are a critical part of the
4 architecture. You want a bomber to be able to range beyond
5 single point targets. It is not the survivability of the
6 bomber. It is the ability of the bomber to access targets.

7 Senator Cotton: But in an unclassified setting, it
8 stands to reason if you do not have an air-launched cruise
9 missile and the bomber has to be essential over the target,
10 which means --

11 General Hyten: It has to be over the target.

12 Senator Cotton: -- over the air defense systems.

13 General Hyten: Which is over the air defense systems
14 in many cases. But it also means that I am limited to the
15 number of targets I can access.

16 Senator Cotton: Stealth technology has advanced
17 considerably over the last 30 years. Are our adversaries'
18 radars advancing as well to counteract our advances in
19 stealth technology?

20 General Hyten: They are, and it is a game of point and
21 counterpoint. We make an advance; they make an advance.
22 The B-21 will stay ahead of those advances. We have to
23 continue to stay ahead of those advances. That is another
24 reason why the B-21 is an important element of the
25 architecture.

1 Senator Cotton: And another reason why the long-range
2 stand-off cruise missile is an important development because
3 we have to expect our adversaries' radars will continue to
4 improve?

5 General Hyten: And there is always the opportunity of
6 a breakout too. So you do not want to be stuck in a one-
7 solution game when you have the opportunity to have multiple
8 solutions.

9 Senator Cotton: I want to turn to the Intermediate-
10 Range Nuclear Forces Treaty. You touched on that briefly
11 earlier. General Selva has stated to the House Armed
12 Services Committee that now Russia has deployed in
13 operational mode a ground-launched cruise missile that
14 violates the INF Treaty.

15 How destabilizing is it to Europe and how threatening
16 is it to our citizens and troops and interests in Europe for
17 Russia to have that capability?

18 General Hyten: The single missile is -- and I will
19 show you were it is deployed tomorrow. A single missile is
20 not that destabilizing. The action of breaching that treaty
21 and moving into that area and if they deploy large numbers
22 and they move them into the west of Russia, that creates a
23 very significant threat to our European allies. And that is
24 why I believe we need to address it right up front. As a
25 whole of government, how do we respond to that decision by

1 the Russians to break out of that treaty?

2 Senator Cotton: Is it fair to say the INF Treaty is a
3 treaty that is more beneficial to the United States than it
4 is to Russia or was for the Soviet Union since we do not
5 have many enemies on our borders who want to fire ground-
6 launched cruise missiles at us?

7 General Hyten: So we have notified Congress and the
8 administration that we are going to do a detailed assessment
9 of the INF Treaty from all military aspects. We will do
10 that as part of the nuclear posture review. But we are also
11 going to do that as a -- provide our military judgment to
12 the political leadership of what that INF Treaty really
13 means to the United States.

14 Senator Cotton: And when you say a whole-of-government
15 effort, your point there is that the Department of State and
16 the various international and economic agencies and
17 organizations in our government have some role to play as
18 well in determining what the American response to these INF
19 Treaty violations will be?

20 General Hyten: Especially the Department of State.

21 Senator Cotton: From a military standpoint, is it
22 threatening to U.S. interests to have potential Russian
23 ground-launched cruise missiles counteracted only by 30-
24 year-old aircraft and aging warheads in Europe?

25 General Hyten: It is a concern to the European

1 theater, a concern to NATO. We have to work it as well
2 inside the NATO alliance. Again, I am not in NATO. I do
3 not have a NATO hat. I am not a diplomat. But
4 fundamentally all of those elements have to look at the
5 problem of a ground-launched cruise missile again which we
6 have not seen in that part of the world for quite some time.

7 Senator Cotton: Thank you, General. My time has
8 expired.

9 General Hyten: Thank you, Senator.

10 Chairman McCain: Senator King?

11 Senator King: Thank you, Mr. Chairman.

12 I would appreciate it, General, if you scientists could
13 figure out a way that we could be in two places at once.
14 This morning ironically there is a hearing upstairs in the
15 Energy Committee where I just went and came back on cyber
16 and our vulnerability.

17 Let me ask a couple of questions. CYBERCOM is being
18 elevated to a full combatant command, and you have talked
19 about how that is proceeding. The next question is
20 splitting CYBERCOM and NSA of the dual hat role. What has
21 to happen for that to occur? In other words, where is the
22 benchmark where we can start to talk about it? Because a
23 full combatant command in CYBERCOM is a big responsibility.

24 General Hyten: I will describe that in kind of two
25 levels. We can have a more detailed discussion in the

1 closed hearing tomorrow.

2 But at the broadest level at the unclassified side,
3 before we separate Cyber Command from the National Security
4 Agency, we need to have Department of Defense service-owned
5 cyber platforms to operate on. So again at the broadest
6 unclassified terms, one of the reasons that Cyber Command
7 and the National Security Agency are combined today is
8 because they use the same platform. We need to have a
9 different set of platforms.

10 Now, there are acquisition programs of record being
11 instituted to build those capabilities. Once those
12 capabilities are built, I would be supportive of separating
13 the two. But I will not advocate separating the two until
14 we have a separate platform in the services that Cyber
15 Command can operate on.

16 Senator King: I appreciate that, and we can go into
17 that in more detail.

18 This is an interesting hearing because we are talking
19 about cyber. We are also talking about nuclear. When we
20 talk about nuclear, all the discussion is about a deterrent.
21 That is what you have been talking about all morning. And
22 yet, as near as I can tell -- I have been going to these
23 hearings for 3 or 4 years now -- there is no coherent cyber
24 deterrent strategy or doctrine. Do you agree that that
25 should be a priority for our country to develop that

1 strategy and doctrine and to make it public so our
2 adversaries know that there will be consequences to results
3 from a cyber attack?

4 General Hyten: I think what is missing is a broader
5 discussion of what 21st century deterrence really means.
6 That involves the nuclear capabilities as the backstop, but
7 fundamentally space, cyber, conventional, all the other
8 elements as well.

9 When we talk about deterrence, we tend to fall back 50
10 years ago to the deterrence model of the 1960s, 1970s, and
11 1980s when it was a very broad nuclear deterrence discussion
12 where we had mutually assured destruction --

13 Senator King: It was a binary analysis.

14 General Hyten: It was a binary analysis. Now it is a
15 multi-variable analysis. And each of those has to be put in
16 context. And the context has to be the fact that we are
17 actually not deterring cyber. We are not deterring space.
18 We are deterring an adversary that wants to operate and do
19 damage in those domains. That is what we have to deter.

20 Senator King: We are deterring aggression, which may
21 come in a variety of forms, one of which could be cyber.

22 General Hyten: Yes, Senator. That is exactly right.
23 At STRATCOM, we have created an academic alliance now with
24 35 academic FFRDC partners to look at what 21st century
25 deterrence really means and trying to stimulate that debate

1 in the Nation because I think it is an important discussion
2 to have inside this Nation. What do we really mean by
3 deterrence in the 21st century? I think it is fundamentally
4 different, but we have not fully defined it, thought through
5 it, and had that public date.

6 Senator King: I agree with you, but I agree that we
7 need to have that public debate sooner rather than later.

8 General Hyten: Yes, sir.

9 Senator King: These attacks are occurring virtually
10 daily.

11 General Hyten: Yes, sir.

12 Senator King: One other point on the CYBERCOM
13 elevation. When you are talking about EUCOM or NORTHCOM,
14 you are talking about bombers and tanks and submarines and
15 aircraft carriers. One of the different parts of cyber, it
16 seems to me, is the interrelationship with the private
17 sector, and that a cyber attack most likely will come on the
18 private sector. The hearing we are having upstairs is about
19 cyber in the energy sector. So CYBERCOM cannot be simply
20 military. There has got to be some, it seems to me,
21 structural relationship to the private sector, particularly
22 critical infrastructure. Would you agree?

23 General Hyten: So I think when it comes to cyber, we
24 need to focus on the effect that is being created. There
25 has got to be a common shared situational awareness in the

1 cyber domain of what is going on. But the action to respond
2 to whatever the issue happens to be has to be what the
3 threat is and what that threat is trying to create in terms
4 of harm to the United States. If it is criminal, then that
5 is the Homeland Security side. If it is a military action
6 against the United States, then it is the Cyber Command
7 side. But the situational awareness has to be common.

8 Senator King: But the defensive side of it may often
9 take place within the private sector.

10 General Hyten: The defensive side may be in the
11 private sector. It may be in the private-public sector. It
12 may be in a number of different places. But the situational
13 awareness is the key.

14 Senator King: I am just suggesting that the new
15 CYBERCOM, when it is elevated, needs to think more broadly
16 than simply within the Pentagon. It has to think in terms
17 of relationships to these private sector critical
18 infrastructure. It is not a typical guns and tanks analysis
19 because you are dealing with so many of these -- the threats
20 are in the private sector.

21 The nuclear posture review that is going on -- I am
22 looking forward to the results of that. Are there things we
23 could and should be doing now on nuclear command and
24 control? That seems to me one of the most serious
25 vulnerabilities.

1 General Hyten: It is. We have been a little slow in
2 stepping up the hiring for the NC3 center inside the United
3 States Air Force. That is now proceeding. But we have the
4 resources going to the right place. We are hiring the right
5 people, but it is not going to be an overnight solution
6 because once you hire new people, they still have to figure
7 out what they are going to do so they can move forward.

8 But we need to be aggressive and have very tight
9 oversight of what is going on there to make sure that that
10 does not slow down. I think both the Air Force and the Navy
11 have taken it seriously now, but it is building up from a
12 very deficient state.

13 Senator King: I just do not want command and control
14 to be lost when we are talking about submarines and bombers.

15 General Hyten: Absolutely. It is my number one
16 concern from a modernization perspective.

17 Senator King: Thank you, General.

18 Chairman McCain: Senator Perdue?

19 Senator Perdue: Thank you, Chairman.

20 General, thank you for being here.

21 I want to echo Senator Blumenthal's comments about your
22 forthrightness. It is very refreshing. Thank you, sir.

23 I want to pursue the nuclear development in Russia just
24 a little bit. General Robinson in February of this year
25 told the Toronto Star -- and I quote -- today Russian cruise

1 missiles can reach us from ranges we are not used to. No
2 longer do they have to enter or come close to North American
3 airspace. That is a game changer. Do you agree with that
4 observation, sir?

5 General Hyten: I do agree with that.

6 Senator Perdue: Sir, in 2012, the National
7 Intelligence Council report stated, quote, nuclear ambitions
8 in the U.S. and Russia over the past 20 years have evolved
9 in totally opposite directions. Reducing the role of
10 nuclear weapons in the U.S. strategy is a U.S. objective
11 while Russia is pursuing new concepts and capabilities for
12 expanding the role of nuclear weapons in its security
13 strategy.

14 Do you identify with that observation, sir?

15 General Hyten: I do, and I cannot help but look at
16 history and say when we started to de-emphasize nuclear
17 weapons, our adversaries, not just Russia, but all our
18 adversaries, started to modernize and build up their nuclear
19 capabilities.

20 Senator Perdue: There is some correlation to the North
21 Korean development and Iran and China.

22 General Hyten: And China.

23 Senator Perdue: Yes, sir. What we have seen in Russia
24 then, by 2020 it is projected, I think, that Russia's
25 nuclear triad -- 70 percent of its nuclear forces will be

1 replaced by new systems. Sir, if we continue on the current
2 path without a major radical change, what percentage of our
3 triad will be supported by new systems?

4 General Hyten: By what date?

5 Senator Perdue: By 2020, which is the estimate in
6 Russia. 2020, 70 percent of their triad will be new.

7 General Hyten: We will not be modernized by 2020.

8 Senator Perdue: Right.

9 General Hyten: Then I look at the INF Treaty to
10 develop nuclear -- these are all things they are doing just
11 in the last 4 years. They violated the INF Treaty. We
12 talked about that. Their expanded deployment of air- and
13 sea-launched nuclear cruise missiles not limited by the New
14 START treaty -- you know, what they did in Crimea. They are
15 threatening our allies with nuclear attack. They are
16 actually using it in rhetoric openly now about intermediate-
17 controlled nuclear acceleration to -- accelerated to get a
18 deceleration in aggressive posture. But they have also
19 developed things in the sea, the underwater nuclear drone,
20 the new nuclear submarine.

21 So my question is all of this rhetoric, the buildup in
22 cruise missiles, intermediate-range nuclear-tipped cruise
23 missiles, and their modernization of their nuclear force --
24 what does all this suggest about the role of nuclear weapons
25 in Russia's nuclear or their total national security

1 strategy?

2 General Hyten: It suggests that the nuclear weapons
3 are a primary element of their overall national security
4 strategy. You have to look at their investment. You look
5 at their finances and how much money they are spending in
6 this capability and the vast majority of their capability is
7 going at strategic forces. And that is primarily nuclear
8 but also space and cyberspace to a smaller amount. But when
9 you put those pieces together, you cannot help but say that
10 that is their strategy for national security.

11 Senator Perdue: And what does that say to us in terms
12 of our strategy of de-emphasizing this deterrent that we
13 have had for 70 years?

14 General Hyten: Well, I believe that the last 20 years
15 we have de-emphasized nuclear weapons, and that has created
16 an imbalance in the approach of our adversaries that we have
17 to address. That is why we need to modernize our
18 capabilities across the board. We have to meet strength
19 with strength. I never want to be able to have to sit down
20 with a potential adversary and have a negotiation from a
21 position of weakness.

22 Senator Perdue: I agree, sir.

23 General Hyten: Ever.

24 Senator Perdue: Given that, how long will it take us,
25 given the current procedures of acquisition and development

1 to modernize the ICBMs over the entire triad?

2 General Hyten: Sir, we are talking about a 30-year
3 modernization program. We are talking about 15 years of
4 development and production, and then modification and
5 support as we go into --

6 Senator Perdue: So what we are really saying -- I know
7 that we are not in a classified environment, and I look
8 forward to that conversation. So what we are saying is from
9 the reality today, given our past practice, is that from
10 2020 going forward, Russia is in a much more modernized
11 position of acuity than the United States, and that will
12 occur over the next 20 to 30 years. Is that correct?

13 General Hyten: And then we will modernize and then we
14 will have a modernized capability.

15 But the thing about a deterrent capability is it does
16 not matter how old it is. It just matters whether it works.

17 Senator Perdue: And you are confident today that the
18 triad is --

19 General Hyten: The stuff that we have today will work.
20 The question is will it work 10 years from now, 15 years
21 from now, 20 years from now. And that is where the risk
22 comes in. That is why modernization has to be a priority.
23 But we are ready today. The force is ready today. The
24 force is motivated and understands they are the critical
25 element of our Nation's security.

1 Senator Perdue: And that is comforting.

2 I have one last question in my time remaining. You
3 addressed it earlier about the helicopter, and I appreciate
4 your anger about that, to be candid, sir.

5 But we have also got a situation where in modernizing,
6 you have to go through 60 stakeholders basically. And I
7 think that has been documented. And you have said we do not
8 move fast enough from concept to capability. What can we do
9 to help you? What can you do to help us accelerate our
10 ability to be fast?

11 General Hyten: To me, the fundamental change that has
12 to be is we have to put somebody in charge and just hold
13 them accountable and let them go do their job. And if they
14 fail, get somebody else to go do that job. But we have so
15 many people that make decisions. That takes forever to get
16 through the process and get everybody to dot the I's and
17 cross the T's and make sure everything is okay. It is
18 almost impossible with the structure that we have created to
19 go fast.

20 That structure was created because of problems in the
21 acquisition business. It was created because we had
22 overruns and problems in the past. So the way we fixed the
23 problem is we did not hold somebody accountable. We created
24 a new oversight mechanism to make sure that whether it is
25 test or development or whatever it is, we have an oversight

1 mechanism to look at everything and make sure that it is
2 right. We have got to get back to the point where we put
3 somebody in charge and hold them accountable.

4 Senator Perdue: Well, that is very refreshing,
5 General. Thank you for your testimony and your service.

6 Thank you, Chairman.

7 Chairman McCain: I would point out we made some
8 progress in that direction by putting the service chiefs in
9 the position of responsibility, but we certainly have a lot
10 more to do.

11 Senator Heinrich?

12 Senator Heinrich: Thank you, Chairman McCain.

13 And welcome, General Hyten.

14 So for starters, I want to ask, given the very real
15 budget pressures that we find ourselves in, in your
16 professional opinion should our priority at this point be
17 modernization of our nuclear forces through completion of
18 our life extension programs or should we be prioritizing the
19 expansion of our nuclear forces with brand new weapon
20 designs at this juncture?

21 General Hyten: Are you talking about the nuclear
22 weapons themselves or the --

23 Senator Heinrich: Not the personnel. The weapons
24 themselves.

25 General Hyten: The weapons themselves. I think the

1 focus has to be always ready, reliable weapons. And so the
2 priority has to be the service life extension before we get
3 to new weapons. But fundamentally at some point in the
4 future, we have to be able to transition to those new
5 weapons. And the labs are very engaged in making sure we
6 know exactly what the status is. I think the lab directors
7 are some of the most incredible people that I have probably
8 ever met, and they give me very good advice about how to do
9 that. But the priority has to be the life extension first
10 because you always have to be ready, and then when and if do
11 we have to modernize and change the structure.

12 Senator Heinrich: Well, I share your sentiments about
13 the lab directors. We had a good briefing with them
14 recently.

15 Do you want to say anything else about the sort of
16 sequence of the LEPs to ensure that we continue to have the
17 near-term risk mitigated, or would you rather save that for
18 another setting?

19 General Hyten: I think I would like to save that for a
20 closed session.

21 Senator Heinrich: That is fine.

22 Let us go on to talk a little bit about New START.
23 What are the defense and intelligence benefits of the
24 inspections, the database, the unique identifiers of
25 Russia's strategic nuclear forces that we have secured

1 through that arrangement? And what would be the
2 implications if those provisions went away?

3 General Hyten: So I cannot give you the details of
4 what we learned in this forum, but what I can say at an
5 unclassified level is that we get huge value from a
6 bilateral verifiable treaty that allows us to see exactly
7 what our adversaries are doing from a strategic weapons
8 perspective. Now, the thing about a bilateral verifiable
9 treaty is they also get that kind of insight from us. So
10 that always has to be part of the calculation as you go
11 through.

12 But we have an understanding of exactly what those
13 capabilities are. They have those understandings of what
14 our capabilities are. I think when they look at them, they
15 get an assessment of the readiness of our force and the
16 ability to provide a deterrent. I think that is a powerful
17 message, and we get a message in return.

18 Senator Heinrich: Do you think that both sides
19 obviously get a little bit of a window into intent and
20 posture that mitigates risk so that unintended consequences
21 do not lead to an unnecessary escalation?

22 General Hyten: Absolutely. And I think every time
23 that -- well, I will just say when you walk in and you see a
24 nuclear weapon for real and you see the readiness of the
25 force to do that, you do not want that to be employed

1 against you. That is an element of deterrence that is I
2 think one of the most powerful elements of deterrence there
3 is. You actually have to see it to embrace it. And when
4 the Russians see it, when we see it when we go there, that
5 helps the deterrent posture across the globe.

6 Senator Heinrich: Yes. I have to say I think that is
7 a very insightful comment, and I would encourage all of my
8 colleagues to make the effort to see our deterrent up close
9 and personal. It is a very sobering impact that that has,
10 and as somebody whose father lived through some of the test
11 phases, I think the closer people can come to seeing the
12 reality of that, I think the better their decisions will be
13 made down the road.

14 I want to ask you one last question before my time
15 expires. Los Alamos Lab is the designated center of
16 excellence for plutonium research. In your view, does our
17 current strategy maintain the critical facilities and the
18 capabilities for plutonium technology? And are we on
19 schedule to meet the required production of plutonium pits
20 by the late 2020s?

21 General Hyten: So the answer is yes, but I have
22 concerns about the requirement in the late 2020s. I cannot
23 remember if the number is classified. So I just will not
24 say the number.

25 Senator Heinrich: That is fine.

1 But the focus on those facilities needs to be acute.

2 General Hyten: The focus on that facility has to be
3 there all the time. In the near term, I am very comfortable
4 with where we are. It is really 10-15 years from now that I
5 have concern about maintaining the necessary capability to
6 generate what we need for weapons.

7 Senator Heinrich: Thank you, Mr. Chairman. I will
8 yield back.

9 Chairman McCain: Senator Tillis?

10 Senator Tillis: Thank you, Mr. Chairman.

11 General Hyten, thank you for being here, and thank you
12 for wearing that Carolina blue shirt. The Tar Heels wore it
13 last night when they won the national championship or a
14 similar color.

15 General Hyten: I am glad I could help you out,
16 Senator.

17 Chairman McCain: It is breaking news.

18 [Laughter.]

19 Senator Tillis: I wanted to really follow on to some
20 questions that I think Senator Perdue got to at the end of
21 it and it really made me think about asking you when you
22 responded to the question from Senator Blumenthal regarding
23 the helicopters. You know, we have got an acquisition
24 environment now across all of DOD that thinks it is okay to
25 take 10 years and 700 pages to spec the next generation

1 handgun, fairly simple. The kind of weapons you are talking
2 about are slightly more complicated.

3 So I would like to talk more about things that you
4 would like for us to consider in terms of authorities or
5 constraints that we have placed on you or the Department to
6 really get to the root causes of some of these problems and
7 delays that are very costly and, at the end of the day,
8 threaten our national security.

9 General Hyten: So it is interesting for me. So I
10 started off in the acquisition business and then I went into
11 operations, and I was happily an operator for almost 2
12 decades. And then the Air Force called me back in to be in
13 acquisition again as a two-star.

14 So I came back in, and there were all these things that
15 were broken. And so the first thing I did is I read the
16 federal acquisition regulations. I actually read them. It
17 was quite painful, but I read them. And then I read the
18 JCIDS process for requirements, the DOD instruction that
19 talks about -- the chairman's instruction that talks about
20 how you do requirements.

21 And what struck me as interesting is the law, the
22 regulations, and the policy that has been put in place for
23 requirements and acquisition actually allows you to be as
24 streamlined as you want to be. It is all written right
25 there. It is legal. You can do all those things. We just

1 have chosen to implement a process that is not responsive.

2 Senator Tillis: How do we fix that?

3 General Hyten: I think what we have to do is you have
4 to eliminate a lot of the bureaucracy that is in the middle.

5 Senator Tillis: Who is that on?

6 General Hyten: I think most of it is in -- well, I
7 will just describe from my perspective the way it was built.
8 The way it was built was first we said we are going reform
9 acquisition with the Defense Acquisition Workforce
10 Improvement Act, and that was about 25 years ago. And we
11 said we are going to have a streamlined authority from a
12 program director to a program executive officer to a service
13 acquisition executive to a defense acquisition executive.
14 And at that time, those staffs were very small. In fact,
15 the PEO staffs, the program executive officer's staffs, were
16 in some cases 9 to 14 people.

17 But then the OSD staff grew, and then the service staff
18 had to grow to match the OSD staff. And then the PEO staff
19 had to grow to match the service staff. And then the
20 program office had to grow in order to match those pieces.

21 So to me, you have to take every one of those and cut
22 it out and go back to what was the intent of the law 25
23 years ago, which is the chain of command is the program
24 director to the PEO, to the SAE, to the DAE, and nobody else
25 can get in between.

1 Senator Tillis: Do you see any evidence that that is
2 being addressed seriously?

3 General Hyten: No, sir.

4 Senator Tillis: And without that, then our
5 modernization, the things that we are doing for service
6 extension, they all suffer because there is an inherent cost
7 in delay in new capabilities. Is that correct?

8 General Hyten: That is correct.

9 Senator Tillis: Somebody needs to own that. Actually
10 somebody somewhere in these organizations -- they need to
11 own it. And it is remarkable to me in just the 2 years that
12 I have been here that we are having the same circular
13 discussions at the expense of you being able to do your job
14 even better than you are already doing it.

15 General Hyten: The other thing I will point is we also
16 need stable budgets.

17 Senator Tillis: Well, I agree. That is where I think
18 we have become the root cause of the problem because if you
19 are making long-term investments and we are living paycheck
20 to paycheck through 1-year CRs and we consider that success,
21 we are a part of that problem.

22 But it would really help us I think to get some incites
23 into exactly what you talked about. We will follow up with
24 your office.

25 The last question I had -- and it just reminded me

1 based on something you said earlier about you have certain
2 weapons that have reached their end of life or appear to.
3 There were some people in the prior administration who were
4 concerned that that maybe we were moving too quickly to
5 decommission certain weapons. And I thought I heard from
6 you all that in fact they had reached their usable life, and
7 if you did not decommission them, that there was just going
8 to be additional cost and risk in maintaining them. Is that
9 still a problem?

10 General Hyten: I do not think it is a problem. We
11 have a significant weapons inventory. When we get down to
12 1,550 accountable warheads, we have significant warheads in
13 the inventory to allow us to do that now and for the
14 foreseeable future. So I supported the decommissioning of
15 those weapons. My predecessor did as well just because we
16 have a number that we have to meet and we have the
17 capabilities that were needed to meet it. We do not have to
18 walk down any further.

19 Senator Tillis: Thank you. I look forward to the
20 hearing tomorrow.

21 Chairman McCain: Senator Sullivan?

22 Senator Sullivan: Thank you, Mr. Chairman.

23 And, General, thank you for your testimony and your
24 service and your frank assessment on some of these issues.

25 I appreciate your written testimony focusing on missile

1 defense, and I would like to dig into some of those issues
2 this morning.

3 It is when, not if that North Korea is going to be able
4 to range the continental United States with an
5 intercontinental ballistic nuclear missile. Is that not
6 correct?

7 General Hyten: I believe it is, sir. I think they
8 already have the capability to deploy an intercontinental
9 ballistic missile. The question is when will they be able
10 to mate a nuclear weapon to it.

11 Senator Sullivan: So it is going to happen. We have
12 classified estimates of when it is going to happen, but you
13 can say publicly that is going to happen.

14 General Hyten: Yes. And I will show you the dates the
15 intelligence community predicts that it will happen when we
16 talk tomorrow. It is fairly broad, but I will show you
17 those dates.

18 Senator Sullivan: So one of my concerns has been if we
19 know that that is going to happen, which we do, and the day
20 that that does become public that they can do that, I think
21 there is going to be a big demand that will be on the front
22 page of all the newspapers and magazines that the leader of
23 North Korea can range Chicago or Miami or New York City with
24 a nuke. There will be a lot of demands to do something
25 immediately because of that.

1 So if we know that is happening, it is my view that we
2 should be focusing a lot on missile defense to make sure
3 that we will have a 99.9 percent chance of shooting one or
4 two or three of those down and be able to say publicly if
5 you do do that, we will retaliate massively. That will buy
6 whoever is in the White House some time.

7 We talk about sooner. I think it is sooner rather than
8 later. Can you give the committee a sense of why the date,
9 February 11th, was so important in terms of this very
10 troubling issue?

11 General Hyten: So, thank you, Senator. I am a big
12 supporter of missile defense. I have been for my whole
13 career.

14 But February 11th was a very important date because
15 that is the date --

16 Senator Sullivan: February 11th of this year.

17 General Hyten: Of this year. The North Koreans
18 launched a new, solid, medium-range ballistic missile off a
19 new transporter-erector-launcher. They published pictures
20 for the entire world to see out of a place we had never seen
21 before. That showed a new technology, a new North Korean
22 capability to employ a very challenging technology for us
23 because a liquid missile has --

24 Senator Sullivan: Liquid fuel you are talking about.

25 General Hyten: A liquid fueled --

1 Senator Sullivan: Versus solid fuel.

2 General Hyten: -- versus solid has to be stacked,
3 fueled. It takes time and we can watch. A solid rocket can
4 be rolled out and launched at a moment's notice. And if you
5 noticed our history of building ballistic missiles, in the
6 early days we built liquid fueled rockets, and we had some
7 challenges because liquid fuel is a dangerous thing to try
8 to keep ready and on alert. A solid is a much better
9 solution. So all of our inventory now is solids.

10 Senator Sullivan: So that was a major advancement by
11 North Korea.

12 General Hyten: It was. They moved what was
13 demonstrated at sea onto land, onto a new launcher, and did
14 it in a very quick way.

15 Senator Sullivan: Let me ask you a related question.
16 You talked about the history of our programs in terms of
17 rockets. Do you think there is a culture that we have now
18 with regard to missile defense? We had a provision in the
19 NDAA last year that required the Missile Defense Agency to
20 test at least once a year -- try to test at least once a
21 year. Do you believe we have a culture that focuses too
22 much on always having successful operations in terms of
23 testing? Why is it important to also allow us to fail?

24 General Hyten: I think I have become part of that
25 problem too because when Admiral Sering tests, I am either

1 on the phone or waiting for that email that said did it
2 work, did it work, did it work. And that fundamentally
3 creates the wrong kind of test environment.

4 If you look at what North Korea is doing, test/fail,
5 test/fail. And I look at what I did when I was a younger
6 officer in the space business. That is how you go fast.
7 Von Braun in the early days of the rocket business -- he had
8 a 60 percent failure rate, maybe the greatest rocket
9 scientist of all time. Can you imagine, if Admiral Sering
10 in the Missile Defense Agency had a 60 percent failure rate,
11 what the newspapers would say? In reality, we should be
12 asking was that a successful test. Did we learn what we
13 needed to do to advance the system? And are we testing fast
14 enough? Because North Korea is going fast, test/fail,
15 test/fail, test/succeed, and they are learning. And you can
16 see them learning because that is the way you do the rocket
17 business.

18 Senator Sullivan: So you think we should be doing at
19 least testing once a year? And can we help with regard to
20 that narrative and culture to make sure you are learning but
21 not always having to make sure it is, quote/unquote, a
22 successful test? Can a test that does not hit the target
23 still be a successful test?

24 General Hyten: In many case, we will create conditions
25 where we do not want to hit the target, and then somehow it

1 will still be portrayed as a failure. But we need to
2 understand how long the interceptor can fly. We need to
3 understand various things about a test. A test program is
4 not just about hitting the target. Ultimately, the system
5 is about hitting the target, and we have to learn fast as we
6 go through that.

7 Senator Sullivan: Thank you.

8 Thank you, Mr. Chairman.

9 Chairman McCain: Senator Cruz?

10 Senator Cruz: Thank you, Mr. Chairman.

11 General, it is good to see you. Thank you for your
12 service. Thank you for being here. I enjoyed our visiting
13 last month about the priorities for strategic deterrence and
14 how to improve our capacities going forward.

15 I want to focus a few minutes on questions involving
16 space, which is one of the topics you and I discussed. Last
17 week, your deputy, Vice Admiral Richard, testified before a
18 Space Security Conference about offensive space capabilities
19 and weapons that are being developed by China and Russia.
20 He said that, quote, while we are not at war in space, I do
21 not think we can say we are exactly at peace either. With
22 rapidly growing threats to our space systems, as well as the
23 threat of a degraded space environment, we must prepare for
24 a conflict that extends into space.

25 General, in your judgment, how significant is the

1 threat to our space-based assets, and what would the impact
2 be to our operations if they were degraded?

3 General Hyten: So it is significant and it is growing.
4 You have to ask yourself why we have adversaries that are
5 building weapons in space, weapons that can deploy into
6 space, weapons that can jam our satellites, weapons that can
7 jam GPS. Why are they building that entire infrastructure?
8 It is not because they are interested in the peaceful use of
9 outer space. It is because they are looking to threaten the
10 United States, and they have watched us for the last 20-plus
11 years, ever since Desert Storm. They have watched us employ
12 space to create a fundamental asymmetric advantage on every
13 battlefield we are in. And they understand if they are ever
14 in a conflict with us, if they cannot challenge that
15 advantage, they have a significant potential to lose. That
16 is why they are committing such a huge amount of their
17 national treasure to building those kind of weapons and
18 capabilities.

19 Our job is to make sure that we can always respond,
20 always defend ourselves, always make sure that the
21 asymmetric advantage that we have built over the years can
22 be maintained in any conflict. We have to do that.

23 Now, we hope to deter that conflict by demonstrating
24 that to our adversaries, but nonetheless, if it does extend
25 into space, we have to be ready to fight it.

1 Senator Cruz: To what extent does our weapons
2 targeting and navigation depend upon active GPS and live
3 satellites?

4 General Hyten: You know, it is interesting. The first
5 space war is often referred to as the Desert Storm, the
6 first Gulf War. But in that war, very few precision
7 munitions -- in fact, no precision munitions were dropped
8 with GPS guidance. The only precision munitions were laser-
9 guided munitions. And everybody remembers the video on
10 television from that.

11 But now almost every weapon we drop is a GPS-guided
12 weapon. Almost our entire force structure is built on GPS
13 guidance as we go through that. Our dropping of logistics
14 off of aircraft are GPS-guided air drop systems now. The
15 timing system for many of our weapons is GPS. Our artillery
16 systems are guided by GPS. The guided multiple launcher
17 rocket systems, the MLRS, is a GPS-guided system in the
18 Army. The Navy systems are GPS-guided. We have basically
19 taken that huge advantage.

20 So in the future, we have to look at precision
21 navigation and timing as a mission and build a resilience
22 into that architecture, as well as defending GPS on orbit.

23 Senator Cruz: What failsafes are there in the event
24 of GPS or other satellite systems going down for our weapon
25 systems still being able to operate, or for that matter, to

1 what extent are our troops drilling in a no-satellite
2 environment regarding navigation or weapon systems or
3 otherwise?

4 General Hyten: So about 6 years ago, the Air Force did
5 a study called a Day Without Space, and in that, they
6 basically went to Nellis and on the range took GPS and
7 satellite communications away from the aviators. And it was
8 not good. We were not ready to do that.

9 But since that time, we have basically relearned how to
10 operate in a GPS-denied environment, in a SATCOM-denied
11 environment. We actually have a lot of those capabilities
12 built in. We have the ability to use inertial navigation
13 systems. We have the ability to use a compass and a map.
14 Maybe we were spoiled because space was a benign
15 environment. GPS was always there, and so we just assumed
16 that it was going to be there.

17 We cannot assume that anymore. We have to train for
18 that. We have to train in all services and then build
19 resilient systems to make sure that we have the capability
20 to fight in any situation.

21 Senator Cruz: Russia's aerospace forces are
22 potentially working to deploy an anti-satellite weapon on
23 its interceptor aircraft. A VKF squadron commander was
24 quoted as saying, quote, a new missile is being developed
25 for this aircraft capable of destroying targets in near

1 space.

2 General, how realistic is the threat to our satellites
3 from Russia, and how should the U.S. respond to that threat?

4 General Hyten: So the threat from China is actually
5 more near-term than Russia. I will show you the specifics
6 tomorrow in the closed hearing of what those threats are.

7 But I can tell you that it is real and they would not
8 be committing resources to building that if they did not
9 have some intent to use it in a conflict. And so when you
10 see statements by Russian officers and Russian leaders about
11 building capabilities to do that, I mean, why would they do
12 that unless they were sending a message?

13 Senator Cruz: So what should we be doing about it?

14 General Hyten: Number one, we have to always defend
15 ourselves. So we have to build the ability to defend
16 ourselves against any of those threats. And number two, we
17 have to build an offensive capability to challenge their
18 capabilities in space as well. And we will talk about what
19 we are doing in that in the closed hearing tomorrow as well,
20 Senator.

21 Senator Cruz: Very good. Thank you.

22 Thank you, Mr. Chairman.

23 Chairman McCain: General, thanks very much, and we
24 look forward to tomorrow. And thank you for a very
25 informative and helpful and important hearing. Thank you.

1 We are adjourned.

2 [Whereupon, at 11:26 a.m., the hearing was adjourned.]

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