

Stenographic Transcript
Before the

COMMITTEE ON
ARMED SERVICES

UNITED STATES SENATE

TO RECEIVE TESTIMONY ON UNITED STATES
STRATEGIC COMMAND AND UNITED STATES
SPACE COMMAND IN REVIEW OF THE DEFENSE
AUTHORIZATION REQUEST FOR FISCAL YEAR 2022
AND THE FUTURE YEARS DEFENSE PROGRAM.

Tuesday, April 20, 2021

Washington, D.C.

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7
8 U.S. Senate

9 Committee on Armed Services

10 Washington, D.C.

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12 The committee met, pursuant to notice, at 9:30 a.m. in
13 Room SD-G50, Dirksen Senate Office Building, Hon. Jack Reed,
14 chairman of the committee, presiding.

15 Committee members present: Senators Reed [presiding],
16 Shaheen, Gillibrand, Blumenthal, Kaine, King, Warren,
17 Peters, Manchin, Duckworth, Rosen, Kelly, Inhofe, Fischer,
18 Cotton, Rounds, Ernst, Tillis, Sullivan, Cramer, Scott,
19 Blackburn, Hawley, and Tuberville.

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

3 Chairman Reed: Good morning. Today, the committee
4 will receive testimony from Admiral Charles Richard,
5 commander, at U.S. Strategic Command, or STRATCOM, and from
6 General James Dickinson, commander, at U.S. Space Command,
7 or SPACECOM.

8 I want to thank Admiral Richard and General Dickinson
9 for their service to our nation. I would also like to
10 extend my thanks to the men and women serving under your
11 commands and their families.

12 Maintaining our nuclear deterrent or preserving our
13 ability operate in space are fundamental to today's great
14 power competition with Russia and China. There is a reason
15 that we have asked the commanders of STRATCOM and SPACECOM
16 to testify together today.

17 Until 2019, Space Command was part of Strategic
18 Command. As Space Command stands up as an independent
19 command, I would like to understand what gaps or seams
20 remain exposed as this transition moves forward and ensure
21 these gaps are being addressed; in particular, General
22 Dickinson, I would like to make sure that SPACECOM is
23 fulfilling the space and ground functions you inherited from
24 STRATCOM, with respect to missile warning and nuclear
25 command, control, and communications. Ensuring we can

1 accurately warn both, Strategic and Northern Commands and
2 our senior leadership of a missile attack on the homeland is
3 of the utmost priority.

4 General Dickinson, I understand that you are also
5 responsible for integrating and tasking both, ground and
6 space sensors for better space situational awareness. In
7 essence, your command has become the DOD's sensor command.
8 I hope you will share your vision to integrate this myriad
9 number of sensors, which range are radars on the ground and
10 at sea, to sensors aboard satellites. Finally, General
11 Dickinson, I would like to know how your command is standing
12 up and how you are finding and retaining personnel with the
13 specialized skill sets associated with the SPACECOM
14 operations.

15 Admiral Richard, your command is undergoing an intense
16 period of modernization that began with the ratification of
17 the new START Treaty. This will be the third modification
18 cycle since 1960, as part of each leg of our triad ages out.
19 I look forward to your views on modernizing the entire triad
20 and implications of altering that plan, especially with
21 respect to our near-peer competitors.

22 In addition, I would like to know your views on the
23 efforts by the National Nuclear Security Administration to
24 recapitalize their infrastructure to handle uranium and
25 plutonium. Some of these facilities date to the Manhattan

1 Project and are single points of failure in supporting your
2 mission. It is essential that we understand from you the
3 impacts, if any, on your operations. Finally, Admiral
4 Richard, we have been informed that STRATCOM will require a
5 submarine warhead in twenty thirties to replace one of the
6 two you have now. The replacement warhead is a joint
7 program with the United Kingdom, as their single warhead
8 begins to age out and it is important to our NATO Article V
9 commitments. I hope you will explain this system to the
10 committee.

11 Thank you, again, for appearing today and we all look
12 forward to your testimony. Before I turn it over to Ranking
13 Member Inhofe, I would like to note for my colleagues that
14 there will be a classified briefing immediately following
15 this session in SVC-217 to continue our discussion.

16 Senator Inhofe, please.

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1 STATEMENT OF HON. JAMES INHOFE, U.S. SENATOR FROM
2 OKLAHOMA

3 Senator Inhofe: Thank you, Mr. Chairman.

4 I also want to welcome our witnesses and thank them for
5 their service. Over the past few years, this committee's
6 top priority has been ensuring to implement the National
7 Defense Strategy, which identifies competition with China
8 and Russia as the central challenge to U.S. prosperity and
9 security. I agree with that more so today than in 2018 when
10 it was established.

11 If we are serious about the security of our nation, we
12 have got to maintain the capabilities required to deter
13 China and Russia and we need to be realistic about the level
14 of resources needed to make that happen, because we have not
15 been in the past. Two critical pieces of those objectives
16 are modernizing our aging nuclear deterrent and improving
17 our space capability in an evolving contested domain.

18 Admiral Richard, and commander of the U.S. Strategic
19 Command, your primary job is to ensure that our nuclear
20 forces continue to deter the most severe threats to the
21 survivability of our nation and the security of our allies'.
22 Admiral Davidson told us some pretty worrying things about
23 Chinese nuclear expanses just last month. You have been a
24 big supporter of nuclear modernization and rightly so. We
25 have delayed critical investments in DOD and the NNSA for

1 too long and now we are almost out of time.

2 General Dickinson, as SPACECOM commander, you are
3 responsible for the planning and execution of the global
4 space operations and missions. In most DOD war games, the
5 first acts of aggression from our adversaries occur in the
6 space domain and directly impact outcomes. This makes
7 improving our capability to fight and to win in space
8 critical to deterring China and Russia.

9 Both of you are responsible for missions with zero
10 margin for failure, but I am considered that the
11 administration's defense budget cuts may undermine your
12 ability to develop those capabilities. It would be
13 important for us to hear your best military advice as to
14 what resources you need to accomplish this mission. I look
15 forward to your testimony.

16 Thank you, Mr. Chairman.

17 Chairman Reed: Thank you, Senator Inhofe.

18 Admiral Richard, please.

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1 STATEMENT OF ADMIRAL CHARLES A. RICHARD, USN
2 COMMANDER, UNITED STATES STRATEGIC COMMAND

3 Admiral Richard: Chairman Reed, Ranking Member Inhofe,
4 distinguished committee members, good morning.

5 I am pleased to testify with General Dickinson today
6 and appreciate the collaborative efforts our commands
7 undertake in the defense of the nation. I thank the
8 President, Secretary of Defense Austin, and Chairman of the
9 Joint Chiefs Milley for their leadership and support to the
10 mission of strategic deterrence. I assure you the command
11 is committed to work the priorities set forth by the
12 secretary to defend the nation, take care of our people, and
13 succeed through teamwork.

14 We succeed each and every day through the teamwork of
15 150,000 men and women performing STRATCOM's missions and I
16 will remind the command it is our diversity, resilience, and
17 professionalism that sets us apart and makes us even
18 stronger. It is truly a privilege to represent them here
19 today.

20 I also thank the committee for its enduring support to
21 our national defense and active engagement and interest in
22 the command's missions.

23 Strategic deterrents enables every U.S. military
24 operation around the world. Every operational plan in the
25 Department and every other capability we possess rests on an

1 assumption that strategic deterrence and, in particular,
2 nuclear deterrence is holding. If that fails, nothing else
3 in the Department of Defense works as planned. STRATCOM
4 sets the most foundational of operating conditions to allow
5 the rest of the Joint Force to accomplish its mission.

6 And as a nation, I would assert, until recently, we
7 have not fully considered the implications of engaging in
8 competition through crisis or possible direct-armed conflict
9 with a nuclear-capable adversary in nearly 3 decades. For
10 the first time in our history, the nation is facing two
11 nuclear-capable, strategic-peer adversaries at the same
12 time, both of whom have to be deterred differently.

13 Chinese and Russian advances are eroding our
14 conventional and strategic deterrence. China, in
15 particular, I submit, cannot be considered anymore, a
16 lesser-included case in this context. The remarkable
17 expansion of nuclear and strategic capability is evidence of
18 their drive to be a strategic peer by the end of the decade.
19 I would describe this as the strategic complement to the
20 conventional capability growth that has been reported by
21 INDOPACOM.

22 To me, they are at some kind of inflection point and
23 are rapidly expanding their strategic capabilities. This
24 has happened within the last year. They are well ahead of
25 the pace to double their stockpile by the end of the decade,

1 and I would further submit that the size of a nation's
2 weapons stockpile by itself is a very crude measure of what
3 they can do with that capability.

4 To fully assess the China threat it is necessary to
5 consider the capability, range, accuracy of their delivery
6 systems, command and control, readiness, posture, doctrine
7 in training. In the very near term, China will possess a
8 credible nuclear triad, rapidly expanding road-mobile
9 capability and these are intercontinental ballistic missiles
10 on trucks that they drive around. It is a big country.
11 They can be hard to find.

12 They are moving to solid-fuel intercontinental
13 ballistic missiles, silo based, very responsive, compared to
14 a liquid-fueled one. They are deploying a strategic bomber
15 and they possess now, six second-generation, Jin-class
16 ballistic missile submarines and they are capable of
17 continuous at-sea deterrent patrol. Developing a dedicated
18 nuclear command and control capability that includes launch
19 under warning and launch under attack. By these measures,
20 China is capable of executing any plausible nuclear
21 employment strategy regionally now and will soon be able to
22 do so at intercontinental ranges.

23 I offer for China, it is important to look at what they
24 do, not what they say, and where they are going, not where
25 they are. And I have no choice but to view China as a

1 significant strategic threat and share Secretary Austin's
2 assessment, China is the pacing threat for the nation and
3 DOD at large.

4 Russia, however, remains the pacing nuclear strategic
5 threat, aggressively engaged in conventional and nuclear
6 capability development and modernization, and are now
7 roughly 80 percent complete, while we are at zero. It is
8 easier to describe what they are not modernizing, nothing,
9 than what they are, which is pretty much everything,
10 including several "never before seen" capabilities and
11 several thousand non-treaty accountable weapons systems.

12 They have a nuclear-armed intercontinental ballistic
13 missile that has the Avangard hypersonic glide vehicle,
14 Poseidon nuclear-powered and nuclear-armed underwater
15 vehicle, and the Skyfall nuclear-powered and nuclear-armed
16 cruise missiles, examples of asymmetric strategic weapons
17 capabilities, designed to deter us and our allies, offset
18 perceived conventional inferiority in an effort to terminate
19 events on Russian terms.

20 So, given all that, we can no longer assume the risk of
21 a strategic deterrence failure and crisis or conflict is
22 always low. The days of power projection in a permissive
23 operational environment without regard to a possible nuclear
24 response are over. This is why Secretary Austin testified
25 during his confirmation, nuclear deterrence is our highest

1 priority.

2 Given that threat, the nation requires a fully
3 modernized strategic force and supporting infrastructure.
4 Every presidential administration over the past 60 years has
5 reaffirmed a safe, secure, effect nuclear force, most
6 credible combinations of capabilities to deter strategic
7 attack, assure allies. Each element has unique
8 capabilities, but it is the combined elements of the triad
9 that allow us to execute our assigned national strategy.

10 We are at a point where "end of life" limitations and
11 cumulative effects of underinvestment in our nuclear
12 deterrent and supporting infrastructure against the
13 expanding threat leave me no operational margin. The nation
14 simply cannot attempt to indefinitely life-extend leftover
15 Cold War weapon systems and successfully carry out the
16 assigned strategy. They are at risk of losing credibility
17 in the eyes of our adversaries and if they continue to work
18 at all, they will likely not be able to pace the threat that
19 they are intended to deter.

20 I will just end with, in particular, it is the nuclear
21 weapons stockpile and supporting infrastructure I think is
22 hitting the wall first. Without the recapitalization of the
23 existing weapons, we risk obsolescence and we could reach a
24 point where no amount of money will adequately mitigate the
25 operational risks we will be facing.

1 Final point. The nation has a longstanding, flexible,
2 tailored strategy with a "well thought out" family of
3 policies, capabilities, and postures. I welcome and call
4 for a strategic review, but I advise against any individual
5 policy or capability decision made, absent a complete
6 understanding of the overall effects on that strategy, as it
7 could risk a deterrence failure, which is the underpinning
8 of everything we do.

9 Ladies and gentlemen, I thank you again for the
10 opportunity to be here today and I look forward to your
11 questions.

12 [The statement of Admiral Richard follows:]

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1 Chairman Reed: Thank you, Admiral Richard.
2 General Dickinson, please.

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1 STATEMENT OF GENERAL JAMES H. DICKINSON, USA
2 COMMANDER, UNITED STATES SPACE COMMAND

3 General Dickinson: Good morning, ladies and gentlemen,
4 and thank you, Chairman Reed, Ranking Member Inhofe, and
5 members of the Senate Armed Services Committee for the
6 chance to speak with you today.

7 In describing the accomplishments of the Nation's
8 newest combatant command, I am pleased today to represent
9 the nearly 18,000 military, civilian, and contractor
10 personnel supporting the United States Space Command's
11 mission. In the United States Space Command, our power is
12 absolutely our people. Having just finished the command's
13 celebration of the Women's History Month, we proudly
14 recognize our many female warfighters, one of whom came to
15 us from the 16th Space Control Squadron, where she performed
16 remarkably in our space superiority mission set. Another, a
17 Navy aviator, now part of the Navy's new space cadre, built
18 U.S. Space Command's analytic foundation for the development
19 of our space architecture enterprise. And a third
20 established the joint fires element for our Joint Task
21 Force-Space Defense, to integrate and synchronize space
22 efforts for combatant commanders, and there are countless
23 others that I could go on and on and on about this morning,
24 but I will not, because of time.

25 Our diverse force will continue balancing combat

1 readiness in preparing for the future. We will provide our
2 people a working environment and culture that allows them to
3 thrive while reaching their full potential. Our ideals
4 reflect those of our oath to the Constitution of the United
5 States and we remain committed to providing for the common
6 defense, promoting the general welfare, and securing the
7 blessings of liberty for ourselves and our posterity.

8 Today, I will offer you some insights into our plans
9 for the future, which are aligned with the President's new
10 Interim National Strategic Guidance. When I took command of
11 U.S. Space Command last August, we were still filling out
12 the structures of our new warfighting combatant command for
13 space.

14 As I outlined in my written statement, we have made
15 tremendous progress since then, to include further
16 development of our two functional component commands and
17 establishment of all of our service component commands,
18 significantly advancing warfighting capability in space
19 domain, all while continuing to support the Joint Force with
20 exquisite space capabilities.

21 While largely focused from the geosynchronous build to
22 the last tactical mile on Earth, we are expanding our focus
23 to keep pace with our nation's push into the cislunar region
24 and to the Moon and Mars and beyond.

25 China's space enterprise continues to mature rapidly,

1 presenting a pacing challenge for us. They invest heavily
2 in space with more than 400 satellites on orbit today.
3 China is building military-space capabilities rapidly,
4 including sensing and communications systems and numerous
5 anti-satellite weapons, all the while, China continues to
6 maintain their public stance against the weaponization of
7 space.

8 Similarly concerning, Russia's published military
9 doctrine calls for the employment of weapons to hold U.S.
10 and allied space assets at risk. For example, similar to
11 the Russian space-based weapons test in 2017, Russia
12 recently conducted another test of a space-based anti-
13 satellite weapon. Additionally, the December 2020 test of a
14 direct-assent anti-satellite weapon demonstrates that even
15 as Russia aims restrict the capabilities of the United
16 States, they clearly have no intention of halting their own
17 ground-based or on-orbit counter-space weapons systems.
18 Russia currently has close to 200 satellites on orbit and
19 could double that by 2030.

20 In addition to this activity, on the part of our
21 competitors, we are observing exponential growth in the
22 commercialization of space. We currently track a
23 challenging 32,000 objects in space. Nearly 7,000 of those
24 objects are active or retired satellite payloads. Among the
25 roughly 3,500 active satellites, the three largest single

1 constellations belong to the commercial companies: SpaceX's
2 constellation for broadband internet capabilities, Planet
3 Labs' Earth-imaging constellation, and Spire Global's space-
4 to-cloud data analytics constellation.

5 Overlaying this new global security landscape on the
6 already complex operating environment of space demands a new
7 level of awareness on our part. Given that the President's
8 Interim National Security Strategic Guidance calls for, and
9 I quote, ensuring the safety, stability, and security of
10 outer-space capabilities, USSPACECOM is focused on my
11 number-one priority of enhancing existing and developing new
12 space-awareness capabilities. Space domain awareness gives
13 us the insight into activity throughout the space domain,
14 including potential adversary activities, but perhaps more
15 importantly, insight into the intent of those potential
16 adversaries, too. Space domain awareness provides decision-
17 quality information to combatant commanders and the national
18 command authorities to ensure we can provide viable military
19 options with the appropriate decision space throughout the
20 spectrum of operations from deterrence to warfighting.

21 In order to most effectively accomplish our assigned
22 missions, U.S. Space Command has assessed our current
23 capabilities and developed the requirements necessary to
24 expand that capability where needed to meet our mission
25 imperatives. We have passed those requirements along to the

1 services and the Department of Defense, in general. Our
2 intent is to build the appropriate space operational
3 architecture designed to achieve full operational
4 capability, backed by a team of warfighters, who can
5 outthink and outmaneuver our adversaries.

6 While engaging daily in a competitive environment, our
7 primary goal remains to deter a conflict that begins in or
8 extends into space. So, with the help of this committee and
9 all of Congress, we will achieve that ultimate objective and
10 ensure that the United States and our allies will never have
11 a day without space.

12 Thank you very much this morning. I look forward to
13 your questions.

14 [The statement of General Dickinson follows:]

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1 Chairman Reed: Thank you very much, General Dickinson.

2 Before we begin, let me remind my colleagues that since
3 this is a hybrid hearing, we will not use the early Byrd
4 rule; instead, we will ask questions in order of seniority.

5 They are 5-minute rounds. Please stick as closely as
6 you can to the 5 minutes. You will see the timer before
7 you. And I would ask all colleagues to mute their
8 microphones when they are not speaking. Thank you.

9 General Dickinson, let me begin with what I think is a
10 fundamental question. As I suggested in my opening remarks,
11 you could also be called sensor command, as well as Space
12 Command, because your responsibilities extend not only to
13 space-based sensors, but also to many ground-based sensors,
14 and to integrate them into a system, a coherent system.

15 And so, bottom-line question, what are you doing to
16 ensure that missile-warning infrastructure of radars and
17 satellites are capable of determining whether there is a
18 ballistic or a hypersonic missile attack on the United
19 States?

20 Admiral Richard: Senator, thank you for that question.

21 So, what we are doing at U.S. Space Command over the
22 past 20 months or so since we stood up was looking at all
23 the sensor, the entire sensor architecture worldwide in an
24 attempt or in terms of understanding what sensors we have
25 doing what specific missions. And what we have done over

1 the past year or so has been, we have taken the opportunity
2 to take terrestrial-based sensors that traditionally do
3 missile-defense type of activities from the different
4 services, the Army and the Navy, and we have looked at them
5 from the perspective of how can they contribute to our
6 ability to understand what is going on in the space domain?

7 And while this is just the beginning of it in terms of
8 making those sensors interoperable in our architecture, we
9 are driving towards the future of where we will actually
10 have those integrated. So, in other words, Senator, we are
11 taking current capabilities that used to traditionally do
12 missile defense and seeing if they have capabilities to help
13 us in the space domain in terms of doing our space domain-
14 awareness type missions. And as we look to further refine
15 our requirements, adding requirements to those capabilities
16 through the Department to enhance their ability to do space
17 domain awareness.

18 So, we have had good success over the last 19 months in
19 doing that and we have demonstrated a couple of times, with
20 regards to some of the actions that our competitors have
21 been doing on orbit with a relative degree of success. So,
22 we have taken the first step. The steps after that will be
23 further integration of those capabilities and, again,
24 working with each of the combatant commands in terms of
25 prioritization of those sensors to be able to do both, space

1 domain awareness, as well as missile-defense missile
2 warning.

3 Chairman Reed: Thank you, General.

4 Admiral Richard, why do we need to build a ground-based
5 strategic deterrent, rather than simply extend the life of
6 the Minuteman-III ICBM?

7 Admiral Richard: So, Senator, the answer to that
8 fundamentally starts with the idea that nothing lasts
9 forever. You cannot indefinitely life-extend anything, and
10 I cannot deter with the leftovers of the Cold War forever
11 into the future. That is the fundamental reason here.

12 I am different from the other combatant commands in
13 that I don't come up with my own objectives; they are
14 directed by the President, and as interpreted by the
15 Secretary of Defense and the Chairman. So, I have a stack
16 of things I have been ordered to do. I need a certain
17 amount of capability to go do that and I need weapons
18 systems that will actually work and actually make it to the
19 target.

20 So, there are any number of reasons. The ultimate
21 authority on whether or not Minuteman-III can be extended is
22 the Secretary of the Air Force and the Chief of Staff of the
23 Air Force, as just by the Secretary of Defense. So, I am
24 not the ultimate authority on that.

25 I think we have repeatedly reported to Congress why it

1 is not cost-effective to do that, and from my viewpoint, I
2 am not sure how they are going to be able to do it at all.
3 It is in the details. What they are doing to keep that
4 weapons system functioning, remember, that is a 1970s-era
5 weapons system that I am going to have to employ against
6 2030-level threats. We are down to two of a particular type
7 of switch that is required to go in the launch-control
8 centers. Nobody knows how to make it anymore; it is
9 obsolete. It is not worth a company to put their effort
10 into that. They have repeatedly been pulling rabbits out of
11 the hat to work through those types of issues.

12 A simple one, Senator, is if you try to life-extend a
13 weapons system that was built before the invention of the
14 internet and then turn around and ask me why it is not cyber
15 secure, I don't know how to retrofit a full cybersecurity
16 capabilities forever into the future on a system that wasn't
17 even designed when we had an internet. So, fundamentally,
18 nothing lasts forever and we eventually have to get new
19 stuff, sir. All right.

20 Chairman Reed: Thank you, Admiral.

21 Just one final question in my remaining time. Would a
22 more robust arms control effort by the United States and,
23 obviously, other countries, particularly the United States,
24 complement your mission to deter an atomic attack or a
25 nuclear outbreak?

1 Admiral Richard: Absolutely, Senator. I have said I
2 will support any arms control agreement, less formally, I
3 will take all I can get, right. If we actually have arms
4 control and we are confident in it and it is verifiable it
5 reduces the threat, it simply makes my job easier.

6 Chairman Reed: Thank you very much.

7 Senator Inhofe, please.

8 Senator Inhofe: Thank you, Mr. Chairman.

9 In my office, we talked about this, Admiral Richard and
10 I. I think you covered it so well in your opening
11 statement. I keep thinking, I am not sure what you might
12 have left out, but you have done a great job.

13 We know what Russia is doing. We know what they have
14 been doing. We know what China has been doing. North
15 Korea, now, is presenting a growing risk to the United
16 States and our allies, and yet, our nuclear forces are
17 decades past their designed lives and will need to be
18 retired soon.

19 So, I just think it is important that when we are
20 seeing our primary adversaries, as outlined in our dais,
21 that we are not doing what we should be doing. We are
22 actually behind our primary adversaries.

23 And so, I would like to have you, you know, restate.
24 Russia, we know what they are doing. They have already
25 modernized over 80 percent of its force, and China's nuclear

1 programs are accelerating.

2 So, I would like to know how important is it that we
3 complete the U.S. Nuclear Modernization Program as quickly
4 as possible. You have outlined that we are not, and where
5 we are relative to our adversaries, but tell me how
6 important it is that we do it now.

7 Admiral Richard: Senator, I will start with--

8 Senator Inhofe: Mike, we need your mike.

9 Admiral Richard: I will start with, I want to expand
10 on one point. I said in my opening statement that China
11 could no longer be a lesser-included case. And what that
12 means is they are at the point that what it is going to take
13 to deter them is going to start to be additive to what we
14 have to do with Russia.

15 I don't have the luxury of deterring one country at a
16 time. I am expected to deter all countries all of the time,
17 and then on top of that, I don't have any remaining
18 operational margin, right. We have exhausted the
19 operational margin to allow us to delay this
20 recapitalization as far as we went. I think it is important
21 to remember that a lot of the quantities that we are talking
22 about in these requirements were set many years ago when the
23 threat level was actually much more benign than what we have
24 seen now, and we have simply no operate, you are counting
25 now on more and more things having to go right, and we are

1 counting on more and more that we precisely understand the
2 threat we are at, and that is a standard we have never
3 allowed in our history to happen inside the strategic
4 deterrent force.

5 And then the final point, is we have never had to deter
6 two opponents at the same time that are different. Most of
7 our theory doesn't even account for that. We are working
8 very hard on that, but that is why we have to have these
9 capabilities in order to execute the direction the President
10 gave me.

11 Senator Inhofe: That is good.

12 And I know there are a lot of people that are leaning
13 on our President, a lot of anti-nuke people that are wanting
14 to minimize the concern that we, that we are expressing
15 today. One of the things is the no-first-use policy. Now,
16 that is one that I can't remember one Secretary of Defense
17 who shares, who doesn't share your view on the no-first
18 policy. I mean, it is there. It is real.

19 And so, I think even Secretary Gates was quite
20 outspoken in that area. Can you think of anyone who doesn't
21 have that policy? One quick word, then, on the no-first-
22 use, since that is going to come up, that is going to be a
23 very prominently portrayed and discussed.

24 What is your feeling on that?

25 Admiral Richard: Well, Senator, what I would offer on

1 this, is, and I have testified to this effect before, look,
2 the Nation can have any policy it wants, right. The Nation
3 can have any --

4 Senator Inhofe: Yeah, you did testify. You said, my
5 best military advice would be to not adopt a no-first-use
6 policy. You are strong on that.

7 Admiral Richard: Right. And I still stand by that
8 statement and here is why. One, we have already run an
9 excursion of what that would do to strategic deterrence. It
10 will diminish it. You will remove a level of ambiguity now
11 that has a deterring effect, short of employment of nuclear
12 weapons. We won't have that anymore. That will be
13 mitigated by the fact that nobody is going to believe it
14 anyway, right, it won't be credible.

15 We already have assurances that cover all, but about 10
16 nations or so, half of which are our allies. So, you are
17 only talking to folks who are probably not going to find it
18 credible. It will have no more credibility than our current
19 missile-defense policies do.

20 The catch is some of the allies will believe it. So,
21 it will have a corrosive effect on our assurance and
22 extended deterrence commitments.

23 I think the commander of EUCOM, General Wolters,
24 mentioned, you will get a mixed response. I think he is
25 correct. But I don't see the upside to it, is my point.

1 And so, I continue to recommend we not adopt that.

2 Senator Inhofe: Well, unfortunately, my time is
3 expired, but let me just ask you, General Dickinson, all
4 these documents that we have here that directly address your
5 area, do you think that those, that the 2018, that was back
6 in 2018, that the NDS still accurately assesses the
7 strategic environment as it pertains to space domain?

8 General Dickinson: Senator, I do. I do, in fact,
9 believe it does because, you know, space is a warfighting
10 domain. We have seen the activities by our competitors,
11 both Russia and China, as they have expanded their
12 capabilities, in particular, China in the space domain. We
13 see their capabilities from direct-assent ASAT. Anti-
14 satellite capabilities to on-orbit activity that they have
15 done with that capability. And we have seen the increase or
16 proliferation of their directed-energy efforts in terms of
17 electronic warfare in terms of jamming, as well as laser
18 technology. So, I believe it is absolutely a warfighting
19 domain that we need to continue to work very closely with.

20 Senator Inhofe: Thank you so much.

21 Chairman Reed: Thank you, Senator Inhofe.

22 Senator Shaheen, please.

23 Senator Shaheen: Thank you. And Admiral Richard and
24 General Dickinson, thank you for being here this morning and
25 for your service.

1 General Dickinson, I want to begin with you. The Air
2 Force is currently responsible for space traffic management
3 for both, military and civilian satellites, and as we look
4 at the proliferation of commercial satellites, that has
5 become more and more challenging with situational awareness.

6 But over the next few years, the Department of Commerce
7 is going to assume responsibility for managing the civilian
8 component.

9 Senator Moran and I, as the ranking member and chair of
10 the Commerce, Justice, and Science Appropriations
11 Subcommittee have asked for additional information about the
12 funding and personnel requirements that that kind of
13 transfer would require. We have not yet received a
14 definitive answer from the Air Force about how much it
15 spends on the functions that will be transferred to the
16 Commerce Department.

17 The fiscal year 2021 omnibus provides \$10 million for
18 the Commerce Department to begin to assume those
19 responsibilities. Can you talk about how this compares to
20 what the Air Force is currently spending.

21 General Dickinson: Senator, thank you.

22 The space traffic management, as I mentioned in my
23 opening remarks, you know, we, on a daily basis, we are
24 tracking close to 32,000 pieces of debris, objects,
25 satellites, whether they are active or old dead satellites,

1 and that is quite a, that is a big mission area within U.S.
2 Space Command.

3 Today, the resources that I use on that provide what I
4 would term a very administrative type of function in terms
5 of identifying objects in space so that we are able to
6 provide a secure and safe space environment for activities
7 on orbit, in particular, the International Space Station,
8 for example, in low-Earth orbit --

9 Senator Shaheen: I am sorry to interrupt, but I
10 understand that. I think that is a very important function.

11 That is why we are trying to get some information about
12 how much you are actually spending so we can figure out as
13 we look at the budget for the Commerce Department.

14 And I would say that I had a certain amount of
15 skepticism about whether this should be moved to the
16 Department of Commerce and there was a study done that came
17 to the conclusion that maybe it does make sense to move that
18 function there.

19 So, do you know or can you provide in committee in the
20 future, with the amount of money that you are currently
21 spending on that function?

22 General Dickinson: I certainly can. I can take that
23 back and get you an answer from the Air Force on how much
24 they spend.

25 Senator Shaheen: Thanks very much.

1 You also talked in your opening comments about the
2 importance, you said power is our people, and I certainly
3 agree with that. But as we look at the proposed relocation
4 of Space Command headquarters from chief restructuring
5 officer to the Redstone Arsenal in Alabama, I am some
6 concerns, based on our past experience with a similar
7 transfer of operations from the National Capital Region to
8 Huntsville, Alabama, of the Missile Defense Agency. In that
9 move, the agency lost 80 percent of its civilian workforce
10 because employees refused to move.

11 Do you have any estimate as to how much it is going to
12 cost to move to Redstone from the current location and how
13 many employees you might lose in that process?

14 General Dickinson: Senator, so, I don't have exact
15 numbers on estimates on the cost for the move to Huntsville.

16 That is actually being determined now by the Department
17 of the Air Force as the basing decision authority.

18 And with regards to the civilian workforce, I would
19 categorize that as I don't have a good feel for that right
20 now, because it will depend. I think the military, we can
21 all agree, we are somewhat nomadic and we move where the
22 military tells us to. When dealing with civilians, and I
23 have done that in two previous jobs at the Missile Defense
24 Agency, actually, in my last job at Space and Missile
25 Defense Command, it is a little bit different when you are

1 talking about civilians. They have made life choices and
2 where they are currently living. And so, we will do
3 everything we can to incentivize them to make the move, but
4 I can't give you a percentage on how many that will be.

5 Senator Shaheen: Well, Mr. Chairman, I would hope that
6 we would get some more information before this proposal
7 becomes final about how many employees we might lose and
8 about what the difference in cost is, which I think is
9 significant.

10 Admiral Richard, I was very pleased to see the new
11 Biden administration agree to extend the New START Treaty
12 for 5 more years. Can you talk about how STRATCOM uses the
13 information from New START channels, the inspections and
14 data exchanges and how they are important to you.

15 Admiral Richard: Senator, we were also pleased to see
16 the New START Treaty get extended and it is for that --

17 Chairman Reed: Your microphone, Admiral.

18 Admiral Richard: I'm sorry. You would think I have
19 done this before.

20 We were also pleased to see the New START Treaty be
21 extended, right. And so, you are pointing to one of its
22 primary benefits. In addition to the limits, it is the
23 transparency and the confidence now that we have in
24 understanding what that piece of the threat looks like.
25 What I would further encourage his efforts to get a similar

1 degree of control and accountability on the remainder of the
2 Russian arsenal, all of which is something I have to deter.

3 Senator Shaheen: Thank you.

4 Thank you, Mr. Chairman.

5 Chairman Reed: Thank you, Senator Shaheen.

6 Senator Fischer, please.

7 Senator Fischer: Thank you, Mr. Chairman. Thank you,
8 gentlemen for being here today.

9 Admiral Richard, I would like to thank you for your
10 honesty and your bluntness of your opening statement in
11 explaining the expanding nuclear programs of both, China and
12 Russia. Last week, the Strategic Forces Subcommittee held a
13 classified briefing on these threats and yet, we continue to
14 hear renewed calls for unilateral cuts to our nuclear
15 forces, abandoning the triad, and delaying or cancelling
16 modernization programs.

17 Sir, are you aware of any intelligence or threat
18 assessments that would support these courses of action?

19 Admiral Richard: Senator, I am not. In fact, the
20 threat is only getting worse rapidly.

21 Senator Fischer: So, it is your view that taking such
22 actions would reduce our ability to deter the threats that
23 we face?

24 Admiral Richard: Senator, yes.

25 Senator Fischer: Microphone.

1 Admiral Richard: Senator, yes.

2 And it is not just the nuclear component. Part of what
3 I am trying to show is the relationship in all of our
4 elements of national power and how nuclear underpins that.

5 Senator Fischer: What about the future, because, as
6 you know, the impact of cutting modernization programs now,
7 it wouldn't be felt until the 2030s when our force begins to
8 age out, as you spoke about, and replacements aren't ready.

9 Do you see any reason to believe that the world is
10 going to be a lot safer in 2030 and we won't need a viable
11 deterrent then?

12 Admiral Richard: I see no indications of that. That
13 will be an unprecedented threat that we face in 2030.
14 Hopefully, perhaps we can change that trajectory, but I
15 can't count on hope in terms of having the capabilities
16 needed to do my mission.

17 Senator Fischer: Admiral Richard, what are your views
18 on the current distribution of warheads across the three
19 legs of our triad?

20 Right now we see about 70 percent of our treaty-
21 accountable warheads. They are on our submarines. And if
22 significantly cut the ICBM leg, as some advocates have
23 urged, what number would go up further, and, of course, our
24 bombers are not on alert.

25 Do you think there are risks with leaning too heavily

1 on one part of the triad?

2 Admiral Richard: Senator, the answer is yes, and I
3 will give you just one example of that. What is not often
4 recognized is we don't have a triad day-to-day, right, the
5 bombers are not available to us. We chose to take them off
6 alert as a type of peace dividend after the Cold War.

7 So, day-to-day, all you have is, basically, a dyad.
8 Basic design criteria in the triad is that you cannot allow
9 a failure of any one leg of the triad to prevent you from
10 being able to do everything the President has ordered you to
11 do. If you don't have intercontinental ballistic missiles,
12 we can't meet that criteria. You are completely dependent
13 on the submarine leg. And I have already told the Secretary
14 of Defense that under those conditions, I would request to
15 re-alert the bombers.

16 Senator Fischer: And, sir, you have also talked about
17 counting the number of strategic nuclear warheads a nation
18 has, that can be a crude way to measure their capability.
19 Your posture statement mentions this, as well.

20 Can you elaborate on why this is such an incomplete way
21 to assess an adversary and talk a little bit about the other
22 elements that we need to also be considering.

23 Admiral Richard: Senator, fundamentally, you don't
24 deter by accounting. We don't hold up cards and say, I have
25 more, I win.

1 It is important to know what they can do with that
2 capability to understand, operationally, the threat that you
3 face. It is important to remember that both, Russia and
4 China have a unilateral ability to go to any level of
5 violence that they choose to if they perceive that the
6 stakes are high enough. And there is a point beyond which
7 unlimited conventional capability will not be a sufficient
8 deterrent.

9 So, unless you have a strategic deterrent that will
10 deter them from that, then everything else in the Department
11 of Defense is simply going to get escalated past. And
12 knowing what they are capable of doing is what causes you to
13 come to that conclusion.

14 Senator Fischer: And our capability, our production
15 capability is basically nonexistent, isn't it --

16 Admiral Richard: Yes, ma'am. That is absolutely --

17 Senator Fischer: -- especially when you compare it to
18 China and Russia. Can you speak to that.

19 Admiral Richard: Both China and Russia have
20 significant capability in their nuclear weapons complexes, I
21 can give you the numbers in a closed session, to produce
22 more warheads. We are just barely able right now to life-
23 extend our weapons and we are just starting to get to the
24 point, we use the two terms interchangeably, just to be able
25 to re-manufacture the ones we have. We have no capability

1 right now to actually make a new weapon.

2 Senator Fischer: Okay. Thank you.

3 Thank you, Mr. Chairman.

4 Chairman Reed: Thank you, Senator Fischer.

5 And let me recognize, via Webex, Senator Gillibrand.

6 Senator Gillibrand: Thank you, Mr. Chairman.

7 General Dickinson, I would like to turn to statements
8 made by Secretary Blinken, where he said that the United
9 States will focus on developing standards and norms of
10 responsible behavior in outer space. The DOD Defense Space
11 Strategy also noted our need to promote favorable standards
12 and norms of behavior in space.

13 Can you please discuss SPACECOM's role in developing
14 and practicing those norms and what you specifically believe
15 those norms should be.

16 General Dickinson: Thank you for the question.

17 So, SPACECOM's role in that is, one, our ability to
18 understand what is going on in the space domain is
19 fundamental to establishing and deciding what those norms of
20 behavior are. I mentioned a little bit earlier the fact
21 that our ability to increase our space domain awareness
22 capabilities on orbit is very important to just what I
23 described in terms of understanding what our competitors may
24 be doing in the space domain.

25 I believe that, from a military perspective, that the

1 norms of behavior and what we do in space is very important.

2 We have seen activity over the last 19, 20 months since
3 this command has been established, that has shown that we
4 have had some behaviors in space that are inconsistent with
5 providing a safe and secure environment for our military
6 activities, as well as our commercial.

7 So, in terms of norms of behavior and how we are
8 working, we work very closely with the Department of Defense
9 and, in particular, our OSD policy folks, on determining our
10 recommendations to that process. The developing norms of
11 behavior is a Whole-of-Government idea and approach, if you
12 will, that will dictate our position on what those norms of
13 behavior should be.

14 But, in sum, I would tell you that we have to have safe
15 activities in orbit. We understand those by space domain
16 awareness, along with what that means in terms of where
17 folks put, where our adversaries and competitors put their
18 space-based capabilities and what they are doing.

19 Senator Gillibrand: Thank you.

20 In last week's cyber architecture hearing, the
21 subcommittee discussed the interoperability between our
22 cyber capacity and space operations. Given that your
23 command and CYBERCOM are both operating in highly complex
24 and ever-evolving environments, how integrated would you say
25 your efforts are with theirs, and how do you plan to

1 maintain a high level of integration with CYBERCOM as the
2 threat landscape continues to change?

3 General Dickinson: That is very important in terms of
4 our integration of space and cyber. We do that through
5 several means, if you will. General Nakasone has provided
6 to us, as we has done to the other combatant commands, a
7 cyber-integrated planning element that is currently residing
8 within my headquarters that provides us a very integrated
9 approach to cyber and space operations.

10 In addition to that, we are standing up a joint cyber
11 center within the command, as we speak. And I also have, as
12 a result of the command standing up, I have five service
13 components provided by each of the services to the combatant
14 command with two of those, my Navy component, as well as my
15 Marine component, who are dual-hatted for me in space, as
16 well as cyber. So, I have two service components that cyber
17 is one of their core competencies, along with space, and in
18 addition to that, General Nakasone has given me some support
19 from the 16th Air Force.

20 So, in other words, I have three general ops or
21 headquarters that provide cyber capabilities to me. I have
22 an integrated planning element in my headquarters and I also
23 have a joint cyber center. So, I believe that we are very
24 well integrated in terms of space- and cyber-type of
25 operations.

1 And we are moving very quickly right now in terms of
2 providing our requirements for activities in the cyberspace
3 domain, as well as General Nakasone providing me with
4 requirements of what he will need in his mission areas, as
5 well.

6 Senator Gillibrand: In your written testimony, you
7 mentioned that our adversaries have taken a number of
8 provocative actions in space in order to test us. One
9 concern from the Pentagon's 2020 Defense Space Strategy was
10 that it did not explain in clear, full terms how we would
11 deter adversaries in space. And I am concerned an
12 overemphasis in offensive space operations would destabilize
13 space as a contested domain, rather than deter our
14 adversaries.

15 What do you believe our best tools are to achieve
16 deterrence in space?

17 General Dickinson: Thank you. That is a great
18 question.

19 I would tell you one of our biggest deterrence
20 opportunities is with our allies and partners. We have,
21 just since this command has stood up, we have just seen a
22 bow wave, if you will, of allies and partners who want to
23 come and be part of the U.S. Space Command and part of the
24 space enterprise. And I think as we have seen in other
25 domains, one of the greatest deterrence that we have is our

1 allies and partners and how we can all come together in a
2 very coordinated and synchronized manner in order to do
3 deterrence.

4 One example, in particular, was the messaging that we
5 did last year in 2019 and 2020, in response to Russian on-
6 orbit activities, as well as their direct-assent ASAT tests
7 that they did last year. And what I mean by that is when we
8 developed our messaging strategy for that particular, or
9 those events, we had tremendous participation and
10 integration with our allies and partners that we had never
11 seen before.

12 So, one of the powers of this command or one of the
13 strengths of this command is that we are able to do that 24
14 hours a day in terms of holding our adversaries and
15 competitors accountable in the space domain and our allies
16 and partners provide a big piece to that deterrent message.

17 Senator Gillibrand: Thank you.

18 And Mr. Chairman, I will submit my questions for
19 Admiral Richard for the record. Thank you.

20 Chairman Reed: Thank you very much, Senator
21 Gillibrand.

22 Let me recognize, via Webex, Senator Rounds.

23 Senator Rounds: Thank you, Mr. Chairman.

24 Gentlemen, first, let me begin by just saying thank you
25 very much for your service to our country.

1 Admiral Richard, I believe that our traditional
2 national defense rests on bedrock of the nuclear triad. I
3 know that you have hit this a couple of times, but just in
4 plain English so that folks that don't discuss nuclear
5 triads on a regular basis, the hard-working Americans that
6 are out there that are wondering why we have literally
7 hundreds, if not thousands, of nuclear warheads, can you
8 explain to the average guy that is working out there why it
9 is that the triad is so important to our national security
10 and why it is critical to invest in its modernization.

11 Admiral Richard: Senator, the simple answer to that
12 question is that strategic deterrence doesn't hold, nothing
13 else in the Department of Defense is going to work the way
14 it was designed. That is it, plain and simple.

15 I get anxious that somehow, and remember, nuclear and
16 strategic are two different things. All nuclear is
17 strategic. Not all strategic is nuclear.

18 But we want to put it into a box by itself that has its
19 own threat. You can decide how credible you think that
20 threat is and somehow there is this independent [inaudible]
21 that we can take risks over here and somehow that has
22 nothing to do with what the rest of the Department does,
23 when, in fact, it underpins it and enables it.

24 Yes, we like to throw a lot of numbers around. The
25 bottom line is, what is available to the commander to deter

1 and what am I deterring against?

2 We are treaty-limited to 1500 and 50 accountable
3 nuclear weapons by the New START Treaty. That is what is
4 available to me to accomplish all of the objectives the
5 President has given me, and the consequence of failure in
6 this mission is enormous. That is fundamentally what we are
7 trying to accomplish, sir.

8 Senator Rounds: Interesting that that particular
9 treaty applies to one of our adversaries, but not
10 necessarily all of our adversaries, correct?

11 Admiral Richard: Senator, that is quite correct.

12 Senator Rounds: So, let's just talk about one of those
13 other competitors or challengers in this particular case.
14 And I know that this may be one that may be difficult to do
15 in open session, but can you talk a little bit about what
16 China's civilian nuclear-production capabilities are and
17 whether or not we are factoring that in with regard to their
18 ability to produce nuclear material and the number of
19 warheads that they are capable of producing in a very short
20 period of time. And I guess what I am thinking about are
21 the fast reactors that they have available to them right
22 now.

23 Admiral Richard: Senator, that is actually a great
24 example of how rapidly China is changing, or at least how
25 rapidly we are figuring it out, right. So, the answer to

1 your question is, yes, but that is only as of about a week
2 ago that we became aware of that and started the process to
3 understand the implications of that.

4 Obviously, with a fast-breeder reactor, you now have a
5 very large source of weapons-grade plutonium available to
6 you. That will change the upper bounds of what China could
7 choose to do if they wanted to in terms of further expansion
8 of their nuclear capabilities.

9 We haven't yet run all the numbers. You are right, the
10 answers would have to come back in closed session, but it
11 has only been within the last week that we became aware that
12 this limitation on them has changed in an upward direction.

13 Senator Rounds: Thank you.

14 General Dickinson, we have been competing against our
15 adversaries, air, land, sea, cyberspace, and now we see them
16 most certainly challenging us in space. And while they may
17 talk about having an interest in a military-free space, or
18 at least one in which we are not actively participating in a
19 military matter in space, clearly, the threats are there.

20 I would like to hear your thoughts on our ability to
21 defend against these new threats and what you need in order
22 to maintain unfettered access in space. And do you
23 currently have the equipment and the resources necessary to
24 protect the assets that we have in space right now from the
25 threats from both, Russia and China?

1 General Dickinson: Senator, so I agree, Russia and
2 China are proliferating in the space domain and one more
3 than the other in terms of capabilities on space, not just
4 numbers, but the capabilities, as well, and that, in
5 particular, is China. So, China is absolutely our pacing
6 challenge right now in the space domain.

7 In terms of how I protect and defend on orbit or in the
8 space domain really boils down to my ability to actually see
9 and understand what is going on in the space domain. So, in
10 other words, being able to use a combination of satellites,
11 as well as terrestrial assets to understand activities on
12 orbit, not only from an administrative perspective, in terms
13 of knowing where things are, but actually having the ability
14 to analyze those capabilities to understand what the threat
15 is or what those capabilities could do and their intent.

16 So, space domain awareness, again, my number-one
17 priority in terms of the command, and we have identified
18 that as a requirement to both, the Department of Defense and
19 the services, as well. But in order to do my "protect and
20 defend" mission, I must fully understand what is going on in
21 the space domain.

22 Senator Rounds: Thank you.

23 Thank you, Mr. Chairman.

24 Chairman Reed: Thank you, Senator Rounds.

25 Let me now recognize Senator Kaine, please.

1 Senator Kaine: Thank you, Mr. Chair, and Ranking
2 Member Inhofe.

3 And just today, I am going to be paying a compliment to
4 our staff at every hearing I am doing. The staffs have
5 really done a great job of putting these hearings together,
6 where we combine people attending in person and people,
7 senators and witnesses, attending virtually, and I don't
8 think we should take it for granted. So, I just wanted to
9 offer my thanks to the hard work to make this challenging
10 time work as seamlessly as possible. And to all the staff
11 involved in that, thank you for that.

12 To the witnesses, thank you.

13 My colleagues have asked very good questions, many of
14 which I was going to ask, and I am actually just sort of
15 going to follow-up on Senator Rounds, where he was ending
16 with space awareness. General Dickinson, we had a posture
17 hearing with SOUTHCOM recently and Admiral Faller talked
18 about the lack of dedicated ISR. He has not unique in that.

19 Anytime we have a posture hearing with combatant
20 commands, this is a very common theme. Sometimes, it makes
21 me think of, you know, the old joke about the CEO that said,
22 I gave my legal counsel an unlimited budget and they
23 overspent it.

24 I think the demand for ISR is sort of endless, but ISR
25 is so critical, obviously, to our combatant commanders

1 really getting a handle on and successfully executing any
2 missions that they have.

3 I have a large collection of commercial satellite
4 providers in Virginia who, when these issues come up, they
5 often say that they think that they can provide ISR to
6 combatant commanders in a way that would complement and
7 combine with our DOD ISR capacities to help us out.

8 And so, General Dickinson, I am kind of interested to
9 hear your perspective on whether commercial satellite
10 providers could be woven into the architecture of ISR to be
11 provided to combatant commands in a way that would be
12 helpful or do you see challenges or limitations that would
13 make that difficult?

14 General Dickinson: Thank you, Senator.

15 I am an advocate for the commercial ISR capabilities.
16 I think when we look at the total, as you mentioned, the ISR
17 requirements, that we may never have enough and we will
18 always ask for more. I agree with that comment,
19 particularly, as we look at some of our competitors, in
20 particular, China and how they are developing themselves
21 into a global projection capability around the world and the
22 fact that our ISR or our ability to see them and understand
23 what is going on, not only them, but other competitors, as
24 well, is very, very fundamental to our military operations.

25 And I think the intertwining or interweaving the

1 commercial industry into that is absolutely necessary and I
2 think gives us a great advantage. I will tell you right now
3 that we do rely on commercial ISR in terms of what we do
4 each and every day in the U.S. Space Command. So, I look
5 forward to that. It is very exciting to watch to see how
6 the commercial market, not only with ISR, but with other
7 space capabilities, is actually, you know, developing,
8 maturing, and in my words, kind of exploding.

9 I mean, if you just look at SpaceX, for example, with
10 the Starlink constellation, where they are able to put out
11 60 satellites on one rocket shot. To build a constellation
12 of now, I think over 1300 satellites in low-Earth orbit is
13 amazing and really shows what the commercial industry can do
14 in support of the space domain operation. So, I agree, I
15 think it should be part of the, or it is today and it should
16 continue to do so.

17 Senator Kaine: General Dickinson, I am heartened to
18 hear that, and I will just conclude and yield by time back
19 by saying that Senator Gillibrand's question about creating
20 norms in space becomes very important. The more we use
21 either state-based satellites or commercial satellites,
22 nations all over the world are doing it, the more the
23 prospect of collisions and then space debris affecting
24 everybody else's investments become a real challenge.

25 It is hard to imagine us continuing to be vigorous

1 investors in space satellites all around the world without
2 some kind of international norms where these investments are
3 protected. And so, the DOD's involvement, along with other
4 parts of the U.S. Government in creating those norms is
5 really important, and I was glad to hear your answer to
6 Senator Gillibrand on that topic, as well.

7 So, with that, thank you, and I yield back, Mr. Chair.

8 Chairman Reed: Thank you, Senator Kaine.

9 Let me recognize Senator Ernst, please.

10 Senator Ernst: Thank you, Mr. Chair.

11 And, gentlemen, thank you so much for being here today
12 and sharing your testimonies with us. Your commands do
13 represent very crucial capabilities for our national
14 defense, so thank you, again, for your input as we continue
15 to develop different policies, whether it is strategic,
16 nuclear deterrence, or, of course, space.

17 So, making sure that we have the resources necessary is
18 extremely important and, recently, Chief of Naval
19 Operations, Admiral Mike Gilday, recently said, we need to
20 innovate and we need to modernize. Early adoption of
21 emerging and disruptive technologies, as well as the need to
22 protect our infrastructure and technologies from strategic
23 competitors is absolutely critical.

24 I believe that is true, not only in the Navy, but also
25 to our nuclear and space programs.

1 So, Admiral Richard, as we are looking at the
2 modernization of our nuclear triad, again, going back to
3 those resources, there is going to be a tremendous price
4 tag. I think we all recognize that, but can you discuss for
5 us the margins for delay and the potential costs that we
6 would face if we try to spread out these recapitalization
7 efforts over a period of years within the nuclear triad, not
8 really getting to the heart of the issue.

9 Admiral Richard: Senator, one, thank you for the
10 question, and, two, what I would start with is, we don't
11 have an opportunity to spread these costs out, right. We
12 have life-extended to the maximum extent possible. So, to
13 maintain the level of defense that we have historically
14 assumed in this mission, right, to not take any further
15 risks in this area, I need the first of these
16 recapitalizations to start showing up on time. We don't
17 have any further opportunity to do that.

18 And I do want to present that we can afford this as a
19 nation, right. We only do this every 40 years. If you look
20 at the context of what these decisions are and costs
21 relative to all the other things this nation chooses to
22 spend its money on, these are trivial, compared to that.
23 This is a choice this nation makes as to how much risk it
24 wants to take in this mission issue.

25 I think this exactly what Secretary Madison meant when

1 he said, we can afford survival.

2 Senator Ernst: I think that is so brilliantly put.

3 And not only can we afford it, we must afford this. I
4 think that is a great way to say that, Admiral.

5 So, talking a little bit more about the ICBMs, and if
6 we were allowing the ICBM legs to atrophy, such that it is
7 no longer a credible leg of the triad, what would that then
8 mean to Russia and China, but also for our allies, and can
9 you describe how our allies would react if we no longer had
10 that viable ICBM leg.

11 Admiral Richard: Senator, let me put it this way in
12 terms of what it would do relative to Russia and China. I
13 said that China is not yet able to execute every plausible
14 nuclear employment strategy at intercontinental range. If I
15 were to build a list of the top-five things the U.S. could
16 do to accelerate China becoming a strategic peer of ours,
17 number one or number two on the list is to get rid of our
18 ICBMs, because you will have solved a problem that they
19 can't currently solve right now. That would be the
20 implication for that. And they can do the math and our
21 allies can do the math and they will see that we are not
22 backing up our words with our actions. We will lose
23 credibility, and it will affect our extended-deterrence
24 insurance.

25 Senator Ernst: Thank you, sir.

1 And, General Dickinson, as well, as we talk about, you
2 know, congestion in space, there are over 50 different
3 space-faring nations and a number of space ventures, as you
4 outlined in your opening remarks. Those will continue to
5 climb.

6 So, the risks and opportunities, what are those risks
7 and opportunities that space congestion presents to the
8 command and how do we overcome them?

9 General Dickinson: Thank you.

10 So, the risks to the command are that it is becoming
11 more congested in terms of what I mentioned with the over
12 1300 satellites, which is a good thing in terms of, you
13 know, free-market economy, commerce, space commerce, but it
14 is becoming a more challenging problem. So, the risk
15 becomes that it could become more unpredictable in space,
16 more things to look at, more things to make sure that don't
17 collide as they are in each of the orbits. But the benefit
18 to that, I think, we can see, you know, the world economy,
19 in particular, for space, is booming.

20 And so, we need to do that, but we need to look at it
21 as a domain like we looked in other domains in terms of how
22 do we manage that to make sure that we have a safe and
23 secure space domain.

24 Senator Ernst: Thank you very much.

25 And I yield back. Thank you, Mr. Chairman.

1 Chairman Reed: Thank you, Senator Ernst.

2 Let me recognize Senator King, via Webex.

3 Senator King: Thank you, Mr. Chairman.

4 General Dickinson, I would like to follow-up on Tim
5 Kaine's question to a little bit about the security of our
6 space assets. It seems to me that in a conflict, the very
7 first thing that an enemy will try to do is a major
8 cyberattack and to try to blind us.

9 Senator Kaine talked about commercial satellites. Is
10 redundancy, itself, a strategy for protecting the assets; in
11 other words, lots and lots of small satellites rather than
12 these large, multi-billion-dollar satellites that we have
13 traditionally depended upon, but a redundant constellation
14 of small satellites that would be harder to disable.

15 Because, do you agree with me that going after our
16 satellites would be one of the first things an adversary
17 would do in a conflict?

18 General Dickinson: Thank you, Senator.

19 So, my opinion on that is I believe the small
20 satellites, many satellites in orbit provides us a very
21 redundant, resilient capability. That would be very
22 difficult to degrade once we have it established. It will
23 provide us the ability to do many different types of
24 missions, whether it is communications, whether it is ISR,
25 whether it is missile-warning; those types of activities, I

1 think, will absolutely be more redundant, more resilient if
2 we have, what I would call a mesh network, if you will, in a
3 constellation.

4 In terms of what would happen first, I believe we are
5 in competition each day both, space and cyber, and for us,
6 our ability to compete on a daily basis in the competition
7 phase is very important to what we are doing. And that
8 could very well be the first, that you mentioned, could be a
9 cyber attack followed by something in space. But we are
10 watching that each and every day, and like I said, I think
11 in terms of the redundancy, that is a great technique or
12 opportunity.

13 Senator King: Thank you.

14 Admiral Richard, one of the scariest terms I have heard
15 recently is escalate to de-escalate, which I understand is a
16 stated policy of the Russians in terms of the use of
17 tactical nuclear weapons in order to chock everyone into
18 backing off.

19 Is that something that concerns you in terms of our
20 relationship to Russia and their relationship to nuclear
21 weapons?

22 Admiral Richard: Senator, yes, the short answer is
23 yes. Actually, it may be thought of more as escalate to
24 win, but not to mince words.

25 And so, the whole idea here is for that and anything

1 else they consider doing, to show that that won't work,
2 right, that the costs that we could impose are greater than
3 what they may gain by attempting that strategy, that is the
4 essence of deterrence here and, in fact, the introduction of
5 the low-yield ballistic missile weapon, I remind, we have
6 always had a low-yield capability inside the arsenal. We
7 just added one now that has a much higher probability of
8 facing the threats that we have today. We think that that
9 has successfully improved deterrence against that very
10 strategy.

11 Senator King: Well, to go back to Senator Rounds'
12 question, the fundamental strategy here, and a lot of
13 people, we have gone 25 or 30 years and not thought too much
14 about nuclear weapons, but the whole idea is that those
15 other countries that have nuclear weapons know that we do,
16 too, and that we have the capability to inflict enormous
17 damage on them if they use the nuclear weapons. That theory
18 of deterrence has worked for 70 years.

19 I take it from your comments that you believe that
20 modernization is critical to maintaining the credibility of
21 the deterrent. It is not a deterrent unless your
22 adversaries believe it will work, and isn't that the
23 essential case for modernization?

24 Admiral Richard: Absolutely, sir.

25 Fundamentally, a deterrent is not credible unless the

1 opponent or the other side does the calculation and comes up
2 with, we can either deny that, missile defense is a good
3 example of it, or we can impose a cost.

4 It doesn't have to be a nuclear cost. We are thinking
5 very hard. We are the only nation that can go all domain
6 worldwide. I applaud the Secretary's efforts at improving
7 cross-domain deterrence, but in the end, given the threats
8 that we face, there has to be a nuclear component to it,
9 because we don't have a combination of other things, yet,
10 that can deter that.

11 Senator Kaine: Well, the fundamental theory is that
12 you have nuclear weapons in order to never have to use them.

13 That is what it is all about, isn't it, Admiral?

14 Admiral Richard: It is, and I have said that before,
15 in that it is the only weapons system you don't have to pull
16 the trigger on for it to work. The mere destructive
17 potential of the system changes the way people think. It
18 changes the decisions they make. That is what we mean by,
19 we use it every day.

20 Senator King: A very quick question, I am out of time,
21 but a very quick question. If there were some serious
22 threat, how long would it take to get the bombers aloft?

23 Admiral Richard: Sir, it is a short period of time. I
24 would prefer to answer that in closed session, if I could.

25 Senator King: We will follow-up later. Thank you very

1 much.

2 Thank you, Mr. Chairman.

3 Chairman Reed: Thank you, Senator King.

4 Senator Cotton?

5 Senator Cotton: Thank you, gentlemen, for your service
6 and for your appearance.

7 Admiral Richard, I want to speak about the Nuclear
8 Posture Review, which is underway, as is the custom of
9 administrations. I am concerned that low-level political
10 appointees, a Deputy Assistant Secretary of Defense and
11 Deputy Assistant Secretary of State may be subverting the
12 integrity of Secretary Austin's review.

13 Earlier this month, those political appointees gave an
14 interview in Japanese media, implying the reduction of
15 funding for our nuclear forces and, perhaps, even the
16 enactment of a sole-purpose nuclear policy. Neither of
17 those appointees, of course, have been confirmed by the
18 United States Senate.

19 Were either you or Secretary Austin consulted before
20 they made these public comments?

21 Admiral Richard: Senator, no. No one at STRATCOM or
22 myself was consulted.

23 Senator Cotton: Do you believe that it would be in the
24 best interest of our nation to go to a sole-purpose nuclear
25 policy?

1 Admiral Richard: Senator, no. I think, again, that
2 that would remove a level of ambiguity that has had useful
3 deterrent value to us. We have never, as a nation, chosen
4 to do that.

5 Senator Cotton: And that would undermine our ability
6 to deter, for instance, chemical or biological attacks if we
7 use the sole-purpose policy?

8 Admiral Richard: By policy, we would not consider a
9 nuclear response to those types of threats.

10 Senator Cotton: Do you think allies like the United
11 Kingdom or Japan would like the United States to move to a
12 sole-purpose policy?

13 Admiral Richard: Sir, you know, in the end, I would
14 have to defer to OSD policy, but my indications,
15 conversations is there would be apprehension. It would
16 depend on exactly how we worded it.

17 Senator Cotton: Okay. Thank you for that.

18 I hope the integrity of that Nuclear Posture Review is
19 not subverted by low-level appointees who have never been
20 reviewed by the Senate.

21 I want to move to China. I know you have probably
22 touched on some of these points, but I think there are a few
23 questions that are more vital today. We know what Russia
24 has. We know the threat Russia poses. They have posed it
25 for 60 or 70 years.

1 But I think China is a menacing and rapidly growing
2 threat both, in terms of the quantity and the quality of
3 their nuclear forces. Give a sense just how fast their
4 increasing the quantity of their nuclear forces.

5 Admiral Richard: Senator, I just gave an order at
6 STRATCOM 2 weeks ago that any threat brief or any brief that
7 is discussing China that is more than a month old must be
8 updated with our intelligence folks because it is probably
9 out of date. I can't get through a week right now without
10 finding out something we didn't know about China.

11 Senator Cotton: And in terms of the quality of these
12 forces, it is true that they are moving rapidly towards
13 having a functioning nuclear triad, just like the United
14 States and Russia, which is to say, bombers, submarines, and
15 missiles; is that right?

16 Admiral Richard: Senator, that is correct.

17 Senator Cotton: And on those ground-based forces, in
18 some ways, their quality is more survivable and less
19 detectible than ours since they are moving towards, say,
20 solid-fuel rockets, which give you less warning, since you
21 don't have to stand up the missiles and fill them with
22 liquid fuel or road-mobile and road-mobile missiles, which
23 can be moved around on the back of a tractor-trailer or a
24 train, something this country doesn't use; is that right?

25 Admiral Richard: Senator, that is correct.

1 The road-mobiles of both, Russia and China are
2 challenges to make sure that you can maintain accountability
3 of them.

4 Senator Cotton: It is hard to find a tractor-trailer
5 with a missile on it in a country the size of China, which
6 is as big as the United States, right?

7 Admiral Richard: And both countries are very good at
8 hiding them.

9 Senator Cotton: And you spoke something a few moments
10 ago, and I just want to point out that you said that
11 eliminating our ground-based missiles would be one of the
12 best things that could happen to Chinese planners, and is
13 that because the number of our missile systems complicate
14 their targeting?

15 Admiral Richard: Senator, that is correct. You would
16 solve a problem right now that they don't have an answer to.

17 Senator Cotton: Which is, to use a colloquial term,
18 the missile sync, with all of our, I know you may not like
19 to use that term, but with all of those missiles that we
20 have out in the Midwest and the Rocky Mountain states and
21 just the sheer quantity of targeted sites if you are Russia
22 or China is very complicated to hit.

23 Admiral Richard: It certainly requires a scale of
24 attack that is, makes it very obvious what is going on.

25 And part of why I don't like the term missile sync is

1 there are a lot of things where we have forgotten how we got
2 here. An example is bolt out of the blue, right. Highly
3 improbable. We all agree with that. We would be the first
4 to tell you that. We look at this risk every day.

5 But we forget why it is improbable, right. We made it
6 improbable as a nation. We invented the ballistic-missile
7 submarine. We invented launch under warning, launch under
8 attack. It is improbable because it probably won't work.

9 We can easily take steps to make it more probable if we
10 forget what it is that got us here.

11 Senator Cotton: That is right.

12 And that would be the case, not just if you took the
13 radical step of eliminating an entire leg of our triad, the
14 ground-based missiles, but even if you substantially reduced
15 the amount of ground-based missiles; is that correct?

16 Admiral Richard: Senator, fundamentally, I have got to
17 have enough capacity, right, and I am now about to face an
18 additive threat from China. These numbers that we have were
19 based on a threat situation from years ago.

20 So, I am apprehensive right now. Well, I certainly
21 need everything that is in the program of record, if you
22 want me to do what the President ordered me to.

23 Senator Cotton: So, I will just conclude with a point
24 I often make. We hear from some misguided and misinformed
25 people on the left who might want to eliminate a leg of our

1 triad or eliminate the entire nuclear forces. This fanciful
2 idea that somehow we can rid the world of this weapons
3 system.

4 It is often said we spend so much on weapons we never
5 use; to the contrary, we spend very little on these nuclear
6 forces as a percentage of our Defense budget, certainly as a
7 percentage of our overall economic. And, second, we use
8 these, every single day and we have used them every single
9 day for 76 years to deter another war like the terrible wars
10 of the first half of the 21st Century.

11 Chairman Reed: Thank you, Senator Cotton, via Webex.

12 Senator Warren.

13 Senator Warren: Thank you, Mr. Chairman.

14 And thank you to our witnesses for being here.

15 President Biden has expressed some concerns about the
16 need, the affordability, and the safety of the Trump
17 administration's nuclear weapons policy, and for good
18 reason. The previous administration's modernization plans
19 including items like a new sea-launched cruise missile and a
20 low-yield warhead. Like any new administration, the
21 President's team is taking some time to conduct its own
22 review.

23 So, Admiral Richard, you are the commander of U.S.
24 Strategic Command. Whose job is it to determine the nuclear
25 policy of the United States, your job or the President's

1 job?

2 Admiral Richard: Senator, it is the President's job.

3 I am obligated to provide my best military advice.

4 Senator Warren: I appreciate that.

5 Do you agree that the new administration should be
6 allowed to conduct its own review and that it shouldn't feel
7 obligated or pressured to rubber-stamp the previous
8 administration's plans?

9 Admiral Richard: Ma'am, I absolutely agree with that.

10 I also request an opportunity to make sure that that
11 review, and in fact, I would broaden it. I, again, state
12 that I think it is a mistake to think of deterrence in
13 pieces, that nuclear is somehow separate from conventional,
14 is somehow separate from space and cyber. You have to look
15 at all of that. And I would ask that it be fully threat-
16 informed, and that I have an opportunity to provide the
17 operational implications of potential policy choices.

18 Senator Warren: But you are going to do the
19 operational part here. The President does the policy part.

20 I appreciate your saying this, because you made some
21 comments early in January that puzzled and, frankly,
22 concerned me on this score. On January 5, after President
23 Trump had lost his bid for re-election, you told some
24 reporters that the purpose of a forthcoming Biden
25 administration review of nuclear weapons policy should,

1 quote, validation that we like the strategy that we have.

2 It also sounded like to me that you were saying that
3 there was no reason to change course. You stated, quote,
4 this nation has had basically the same strategy dating back
5 to the Kennedy administration, end quote.

6 So, now, it is your job to provide input and recommend
7 options to the President and the Secretary if you are asked,
8 but that doesn't mean making public comments to try to box
9 in the President's decision-making. I understand that you
10 believe you are operating well within the scope of your
11 responsibilities, but I am concerned and I want a commitment
12 from you that you are not going to infringe on or undermine
13 the administration's review.

14 Do I have your commitment on that?

15 Admiral Richard: Senator, you absolutely do.

16 And my reference to our strategy was not in relation to
17 any one administration. I also said I can trace the lineage
18 of our current strategy back to the Kennedy administration.

19 The nation can have any strategy that it wants and then
20 that leads to a commensurate need for a stack of
21 capabilities, policies, and postures to execute that
22 strategy. I would just like to make sure that the nation --

23 Senator Warren: I appreciate that --

24 Admiral Richard: -- understands the risks it is taking
25 in those decisions.

1 Senator Warren: And I appreciate that you will make
2 that risk clear so that the President and the Secretary can
3 work together to make a decision on this.

4 You know, we are currently spending \$44 and a half
5 billion a year on nuclear weapons and I know that STRATCOM
6 likes spending that money, but I don't. The purpose of the
7 ongoing review is to, quote, reduce the role of nuclear
8 weapons in our defense strategy, end quote. I agree with
9 that goal and I think it is incompatible with that
10 staggeringly high level of spending.

11 Every administration makes administration makes
12 strategic decisions about our force structure and
13 modernization and when it comes to nuclear weapons, those
14 decisions carry tremendous weight. As STRATCOM commander,
15 your role is to support the U.S. Nuclear Doctrine that is
16 set by the leaders elected to grapple with those decisions,
17 not by military officials alone.

18 So, I look forward to seeing the results of the
19 administration's review and I know you will swiftly
20 implement whatever they determine.

21 Thank you, Mr. Chairman.

22 Chairman Reed: Thank you, Senator Warren.

23 Senator Tillis, via Webex.

24 Okay. Now, Senator Cramer.

25 Senator Cramer: Thank you, Mr. Chairman.

1 Thank you, Generals, both for your service and for
2 being here.

3 And I might just, well, I guess I feel compelled to
4 follow-up on what Senator Warren was just talking about.
5 One of the things that I have found frustrating often times
6 is that the self-governed in this country, don't know what
7 we know. And a lot of times that is okay, but a lot of
8 times it is not so okay.

9 So, Generals, both of you, I appreciate the fact that
10 you are both, that you both travel a lot throughout the
11 country. You have both come to my state in your current
12 positions, and that you both are willing to speak openly,
13 but always, always respectfully about the threats that we
14 face, because, quite honestly, I think one of the great
15 threats in this country is when the people assume we know
16 what we are talking about aren't aware of the threats. So,
17 thank you for doing that. A well-informed, several-governed
18 country is the best.

19 I guess I don't feel the need to ask any more questions
20 about whether you support a triad versus something else,
21 Admiral. I have appreciated your opening statement, as well
22 as your answers to several questions, reaffirming the
23 importance of all three legs of the triad.

24 We have talked a lot. You have answered questions,
25 specifically, of course, about the ground-based strategic

1 deterrent and I appreciate that, and the fact that a delay
2 in the modernization will cost both, money and perhaps
3 security.

4 So, let's move over to the LRSO. You know, our B-52s
5 are incredible weapons, especially in the hands of our great
6 airmen like we have in [inaudible], but I am afraid that we
7 will be risking too much and asking too much of those airmen
8 if we take away the LRSO and get it off-track.

9 So, if the LRSO were cancelled or delayed beyond the
10 service life of the legacy air-launch cruise missile, do you
11 think our air leg of the triad would be viable or would it
12 be compromised?

13 Admiral Richard: Senator, the short answer is no. The
14 bottom line is that without an LRSO, you, in effect, don't
15 have an air leg or you have at least put it back to sort of
16 a 1950's version of an air leg with much less capacity than
17 they had back then.

18 I do want to go a bit further. It is not only that it
19 is almost a miracle that they all can fly, I think my
20 predecessor General Hyten testified to that a couple of
21 years ago. To think that a weapons system designed to go
22 against Soviet analog defenses is going to be able to get
23 through sophisticated Russian and Chinese defenses, I think
24 is optimistic, and the outcome on its first day wasn't good
25 enough for what we are going to need for it to do today. I

1 can give you the details on that in closed session.

2 It was designed for a different era. I need a modern
3 weapon in order to do what I have been ordered to do.

4 Senator Cramer: With limited time, I am wondering
5 which of these last questions I want to ask, but I am going
6 to continue on with the strategic deterrent commander. And
7 I know you are acutely aware that credible U.S. nuclear
8 deterrence relies on uninterrupted nuclear command, control,
9 and communications, the NC3 system. And that the mission
10 depends on secure operational technologies, as well.

11 The recent hack of the Florida water treatment facility
12 certainly highlighted the cyber vulnerabilities of our OT
13 system, a threat that is only exacerbated when you add in
14 the NC3 component.

15 Can you update the committee on efforts of STRATCOM to
16 ensure that cyber protection both, to the infrastructure and
17 NC3 are on track.

18 Admiral Richard: Sir, that is a very extensive answer.

19 The things that we are doing, I will answer this, and I
20 have a separate responsibility as the commander of the
21 Nuclear Enterprise Center with the Department-wide
22 responsibilities for nuclear command and control.

23 Fundamentally, I am confident in our NC3 cyber resiliency.

24 It exists in relative isolation. It has tremendous
25 redundancy. It gets the best intelligence. We have an

1 intelligence fusion center, thank you Congress for directing
2 that, General Nakasone.

3 So, everything that Space Command just mentioned that
4 they get support for, we get that and additional abilities
5 to maintain the standards here. The number-one thing I need
6 to do to be able to say that in the future is that I have to
7 modernize the system, right. I have to get it out of legacy
8 modes of operation in order to pace this threat going into
9 the future, but I am confident today.

10 Senator Cramer: To both of you, and I will start with
11 you, General Dickinson, in addition to the Bomber Wing and
12 the Missile Wing at Minot, of course, North Dakota
13 contributes by having the 10th Space Warning Squadron at
14 Cavalier. And maybe this is a good opportunity for me to
15 ask both of you, but, again, starting with General
16 Dickinson, how do the two commands work together to enhance
17 the credibility of U.S. deterrence against adversaries who
18 are competing with us, really, in every domain?

19 General Dickinson: Thank you, Senator.

20 So, that missile-warning architecture is a very
21 integrated capability within U.S. Space Command. We provide
22 that missile warning to U.S. Strategic Command on a daily
23 basis and we work very closely together. I mean, in
24 general, as you know, Senator, we respond out of U.S.
25 Strategic Command when we stood up U.S. Space Command. And

1 so, our daily interaction, our daily operations together is
2 very nested and synchronized.

3 Senator Cramer: I thank both of you.

4 Mr. Chairman.

5 Chairman Reed: Thank you, Senator Cramer.

6 Via Webex, Senator Manchin.

7 Senator Manchin: Thank you, Mr. Chairman. I
8 appreciate it.

9 And thanks to both of you for your service to our
10 country and the commitment by your families for their
11 service. I think they need to be commended, also.

12 The first question I want will go to both of you, but
13 Admiral Richard, with the current and planned advancements
14 in missile technology, such as hypersonics from our
15 adversaries, defense of the homeland can no longer be taken
16 for granted. So, my question would be, Admiral Richard,
17 would you tell me about the adequacy of our current missile-
18 defense batteries, like the Ground-Based Interceptors, the
19 PAC-3 missile, and [inaudible] platforms.

20 Admiral Richard: Senator, I would, in the end, defer
21 to the operational commanders of those systems. For
22 example, for Ground-Based Interceptor, that is Northern
23 Command; however, from my vantage point, in terms of my
24 mission sense and my overall responsibility in missile
25 defense for advocating and operation support, we have an

1 adequate missile defense today. We do need to make sure
2 that we pace it into the future against the threats that we
3 are seeing.

4 And the number-one thing that I would prioritize is
5 both, the ability to warn and the ability to track birth-to-
6 death, because it is not only the defensive pieces to it,
7 that is missile defense. On the missile-warning side, I
8 need to be able to posture forces and posture people in
9 advance of the threat or I have to take other operational
10 decisions over.

11 Senator Manchin: And to General Dickinson, if you
12 could tell me how STRATCOM and SPACECOM are working to
13 integrate future missile-defense technologies, like a Space
14 Sensor Layer with our current systems to maintain global
15 awareness, and the quickest reaction possible to these
16 threats.

17 General Dickinson: Thank you, Senator.

18 So, we work very closely hand-in-hand with U.S.
19 Strategic Command and all the other combatant commands in
20 terms of the integrating, as I mentioned earlier in terms of
21 taking existing terrestrial-type radars that have not
22 necessarily been used before, particularly in the space
23 domain, but in this particular vignette with hypersonics.
24 We continue to look at the integration of those assets.

25 And we are also working very closely with the Missile

1 Defense Agency in growing capabilities on orbit that will
2 help us address that problem, our dilemma with hypersonic
3 weapons.

4 Senator Manchin: And Admiral Richard, your testimony
5 states the next generation of deterrent forces must
6 encompass responsive weapons systems, world-class personnel,
7 resilient infrastructure, and intelligence-informed
8 decisions.

9 Can you describe the steps that you have taken or
10 relationships that you have established, to ensure the
11 timely and initiate flow of intelligence in order to provide
12 decision-makers with accurate, timely information that is
13 going to be needed to make these decisions.

14 Admiral Richard: So, a number of steps. Again, I am
15 fortunate in terms of the priority that is given to
16 strategic deterrence intelligence needs by the intelligence
17 community. I have a number of relationships and a number of
18 liaisons. I mean, as one example, I have 300 Defense
19 Intelligence Agency personnel assigned to STRATCOM
20 headquarters as part of our ability to go do that.

21 Additionally, we have a specific stack of strategic
22 intelligence requirements that have been given to the
23 intelligence community and I receive great support in terms
24 of that.

25 Senator, if I could real quick, I just want to add,

1 going back to the missile-defense piece, because it has been
2 asked a couple of times. We are very satisfied with the way
3 that Space Command has taken over the sensor commander
4 function, right, by utilizing sensors across missile-
5 warning, missile-defense, and space situational awareness.
6 I am actually getting better missile-warning data and the
7 nation is getting better utilization of the assets that it
8 purchased.

9 Senator Manchin: Well, that will go right into General
10 Dickinson. As we all know, the availability of speed and
11 communicating data are and always will remain a
12 vulnerability for our forces, and with the ease of optical
13 or tightbeam communications, utilizing lasers in a space
14 environment, that speed is increased substantially.

15 So, the question would be, that is very impressive, but
16 how is SPACECOM working to bring that speed of
17 communications back down to Earth as we may speak?

18 General Dickinson: So, Senator, that is, what we are
19 currently working with, I think some of the work that
20 General VanHerck has done in all-domain awareness, I fully
21 support the efforts that he is undertaking, as well as the
22 Department in terms of increasing our able to communicate at
23 speed so that we can make the proper decisions at the proper
24 time.

25 What we are doing at U.S. Space Command is kind of

1 looking at the current command and control systems that
2 handle these volumes of information and we are looking at
3 ways that we can integrate those capabilities to provide an
4 all-domain capability where we can see and do and act with
5 speed of relevance to the situation at hand.

6 So, we are looking at existing command and control
7 architectures that we can leverage. We already have a very
8 robust one in the space domain, but we continue to look and
9 how we can leverage all of them together in an all-domain
10 fashion.

11 Senator Manchin: Okay. I just want to thank both of
12 you, Admiral Richard and General Dickinson. Thank you,
13 both, for your service, again, and thank you for being here
14 today.

15 Chairman Reed: Thank you, Senator Manchin.

16 And now let me recognize, via Webex, Senator Tillis.

17 Senator Tillis: Thank you, Mr. Chairman.

18 Gentlemen, thank you for being here and your years of
19 service.

20 Admiral Richard, I want to start with you. I was in
21 the committee room when you gave your opening statement and
22 towards the end you were talking about how we are losing our
23 advantage and you want on to say that we could reach a point
24 to where no amount of money would allow us to catch back up.

25 Would you go back and give a little bit broader context

1 to the specific areas that you think that that threat is
2 real and maybe over what sort of timeline if we don't have
3 adequate resources or authorities, that we could reach that
4 tipping point.

5 Admiral Richard: So, Senator, what drives me to say
6 that in the opening statement is the observation that we
7 have delayed this recapitalization so long that we are
8 getting to points, key pieces of infrastructure or key
9 talent areas, human talent areas where we have not had to do
10 something in 30 years. The best examples are on the weapons
11 complex side of the house right now. There will be more in
12 the delivery system and the command and control that shortly
13 follow.

14 And it is a situation that we don't normally face as a
15 nation. Normally, when we make a decision, and if we find
16 out we were wrong, we can come back 2 or 3 years later and
17 buy it back. We can change our minds. We have to write a
18 bigger check. We try to avoid doing it, but at least we
19 can.

20 We are now at the point that if we lose some critical
21 pieces of infrastructure or we lose some key talent bases, a
22 specific example would be how you make a nuclear reentry
23 vehicle heat shield, right, we haven't done it in 30 years.

24 You would think we had never done it before. If we
25 lose those talent bases, you can't buy it back. It will

1 take 5 to 10 years to either retrain and redevelop the
2 people or rebuild the infrastructure. We don't normally
3 face decisions like that.

4 Senator Tillis: Thank you.

5 General Dickinson, you mentioned 32,000 space objects
6 out there. I think you said somewhere on the order of about
7 7,000 are operational.

8 I have been reading a lot of articles on space junk and
9 the dangers that they could pose to the International Space
10 Station, commercial assets. How much of solving that
11 problem, our emphasis on it, and how many resources are
12 actually dedicated to that?

13 I think Senator Shaheen touched on it, but is this the
14 threat that I perceive it to be, based on publications of
15 the last month or so?

16 General Dickinson: So, Senator, that is a mission area
17 within the command that we do every day. It is about
18 32,000. It grows, as we see, with the commercialization, if
19 you will, of space with multiple [inaudible] companies now
20 moving into the space domain. It is something that we do
21 and we do a very good job at that, in terms of making sure
22 that we are able to predict where we may have a problem with
23 either a conjunction or a collision on orbit.

24 We have a very close relationship with NASA. To your
25 mention of the International Space Station, a very close

1 working relationship, where we provide them with that
2 information and they use that information to do, take
3 whatever actions they may feel is appropriate to maintain a
4 safe environment for the astronauts and cosmonauts onboard
5 the International Space Station.

6 But it is one that we spend a lot of time doing each
7 and every day.

8 Senator Tillis: Going forward, I followed Starlink
9 since they first set up the first dishwasher-sized
10 satellites to provide broadband, ubiquitous broadband. I
11 read a report earlier this week that while they are topping
12 a thousand on orbit now, their goal is to have over 40,000
13 on orbit.

14 How are we working in the commercial space to make sure
15 that we are sequencing more object in space with the goal of
16 not making it more difficult for you to do your job? To
17 what extent would you play a role, if any, in the commercial
18 decisions and permitting to allow more to go on orbit that
19 create a more complex challenge for you?

20 General Dickinson: So, Senator, my responsibilities
21 lie in predicting and understanding where those objects are
22 or the satellites are. The actual interaction with the
23 commercial company on how they should conduct a space launch
24 or on-orbit activities with their satellites really kind of
25 goes back to a licensing capability or a licensing process

1 that I believe the FAA actual conducts with each of those
2 companies before they launch.

3 Senator Tillis: Then, my remaining time, I am kind of
4 curious about how SPACECOM and STRATCOM are going to work
5 together to create a credible U.S. deterrent, particularly,
6 when we seem to be challenged in every domain. So, how are
7 your two commands working together to face up against those
8 threats?

9 General Dickinson: So, Senator, I will answer that
10 first and then I will turn it over to my shipmate here,
11 Admiral Richard, but we work every day with that. And one
12 of the notable things within the U.S. Space Command is the
13 stand up of our joint fires element within the command that
14 actually does that deterrent-type of work in terms of the
15 space domain.

16 But we are very integrated with the rest of the
17 combatant commands to include U.S. Strategic Command and
18 that daily activity in terms of deterrence, not only in the
19 space domain, but in all the other domains. Because as the
20 Secretary of Defense has asked us and told us to do is that
21 deterrence is not just one domain; it is all domains, all
22 the time.

23 And so, our synchronization and coordination of those
24 activities, in particular, on orbit, and then for the other
25 pieces, the other domains is very fundamental. But our

1 relationship and synchronization with U.S. Strategic Command
2 is very close.

3 Senator Tillis: Thank you.

4 Admiral Richard: Yes, Senator, if I could just add,
5 not only to endorse everything that General Dickinson just
6 said, but Chairman Milley and Vice Chairman Hyten have made
7 it really clear, it is not just our two co-coms; it is all
8 co-coms, right. We are driving hard towards global
9 integration both, in planning and operations. We see that
10 as a necessary way forward into the future.

11 Senator Tillis: Thank you, Mr. Chairman.

12 Chairman Reed: Thank you, Senator Tillis.

13 Let me now recognize Senator Rosen, via Webex.

14 Senator Rosen: Thank you, Chairman Reed and Ranking
15 Member Inhofe, for holding this important hearing.

16 I would also like to thank Admiral Richard and General
17 Dickinson for testifying today and, of course, I am grateful
18 for their service to our country.

19 But I would like to speak a little bit about explosive
20 nuclear weapons testing, because last May, the prior
21 administration was reportedly considering resuming explosive
22 nuclear weapons at the Nevada National Security Site, the
23 only facility in the nation equipped to accommodate
24 underground nuclear testing. And this is for the first time
25 since 1992.

1 Nevadans do not want to return to a time when explosive
2 nuclear testing was allowed in our state. It puts the
3 health and safety of Nevadans in jeopardy.

4 So, to prevent this outcome, Senator Cortez Masto and I
5 introduced legislation requiring congressional approval
6 before any future explosive nuclear weapons testing were to
7 take place.

8 So, Admiral Richard, you told the Senate Armed Services
9 Committee last year that there is no condition under which
10 you would recommend the need for renewed nuclear testing.

11 Can you confirm for me, please, today, that there is no
12 current need for a resumption of explosive testing in Nevada
13 or elsewhere, to ensure the reliability of our nuclear
14 arsenal.

15 Admiral Richard: Senator, as you know, I am obligated
16 by Congress to report on my assessment of the combat-
17 readiness of the stockpile. That includes an assessment on
18 the need for nuclear weapons testing.

19 So, you are correct. I have certified the stockpile.
20 I do it annually in writing, and I have stated that there
21 are no identified conditions at this point that would
22 require nuclear weapons testing to restore that confidence.

23 But I further stated in it that I am concerned about
24 the Nation's test-readiness and that I endorsed the lab
25 director's calls, the NNSA, nuclear weapons labs, for a

1 national review of our test-readiness to understand where we
2 sit.

3 Senator Rosen: Thank you. I would like to build on
4 that and ask if you agree that a resumption in explosive
5 nuclear testing, which would violate longstanding,
6 international norms, might provide other nations with an
7 incentive to resume their own explosive nuclear testing
8 activities and, more broadly, would impact global peace and
9 security.

10 So, what are you thinking in that realm?

11 Admiral Richard: Ma'am, I would defer the political
12 implications of a nuclear weapons test to OSD policy or the
13 State Department. I think from a technical standpoint, a
14 bigger driver in terms of any nation's decision to conduct a
15 test has to do with what level of confidence do they have
16 that their nuclear weapons will work to their standards and
17 what other mechanisms they may have; in other words, how
18 much confidence do they want and by what means do they want
19 to get it.

20 Senator Rosen: Thank you. I will move on, but I will
21 just reiterate, we want no nuclear explosive testing in
22 Nevada or anywhere across this country.

23 But I would like to build now on what Senator
24 Gillibrand spoke about earlier, a cyber mission in space.
25 It is no secret, of course as anyone knows, our adversaries

1 see the value of the space domain, developing counterspace
2 capabilities to undermine our interests. So, this week, I
3 plan to introduce with Senator Blackburn, legislation to
4 build a civilian cybersecurity reserve to ensure additional
5 cyber capacity at our times of greatest need.

6 So, General Dickinson, does the newest branch of the
7 military, do you currently possess the necessary workforce
8 to fulfill your cyber mission effectively, and how can we
9 help support your needs in growing the workforce?

10 General Dickinson: Thank you, Senator.

11 In terms of the cyber piece that you mentioned earlier,
12 I would say that is probably General Jay Raymond's avenue or
13 area in terms of what the service, the Space Force provides.

14 But as a combatant commander, I can tell you that I
15 have the resources that I need right now and I am confident
16 in our ability to protect my space missionaries, my critical
17 space missionaries that I do each and every day.

18 And my relationship with Cyber Command in terms of
19 working with Paul Nakasone and his team, is very close. And
20 as the newest combatant command, I have gotten resource that
21 I have determined that I need in order to have a resilient
22 cyber capability or protection within the missionaries, I
23 will have today.

24 Senator Rosen: Well, thank you.

25 I was able to, last year, help get the PROMOTES Act

1 passed, which has a junior ROTC STEM track now and we hope
2 that that will help grow our young men and women as they
3 join JROTC early to help build all of our capabilities and
4 technology in the military. Thank you.

5 I yield back.

6 Chairman Reed: Thank you very much, Senator Rosen.

7 Let me recognize Senator Scott, please.

8 Senator Scott: Thank you, Chairman.

9 Admiral Richard, I read your op-ed from February and I
10 appreciate your candid assessment of the challenges we face
11 regarding Communist China.

12 Have you seen anything with regard to behavior,
13 military spending, posturing, and public statements that
14 lead you to believe that Communist China has any interest in
15 cooperating with other countries on nuclear weapons?

16 Admiral Richard: Senator, I have not. They have a
17 very opaque policy. It makes it difficult to determine
18 anything about what their intentions are, but I certainly
19 have not seen anything that looks like cooperation.

20 Senator Scott: If we don't spend sufficiently to
21 modernize our nuclear forces and Communist China achieves
22 its goal of having an effective nuclear triad by the middle
23 of this decade, what are we facing in terms of defending
24 U.S. interests in the Indo-Pacific Region and beyond?

25 Admiral Richard: Senator, it would be two things, one

1 of which is they could use those capabilities coercively in
2 a way that would limit our decision space in crisis;
3 additionally, it will rip out the underpinnings, by which
4 all the rest of our forces are employed, right. We would
5 not be able to deter China from simply escalating right past
6 us if the stakes were high enough in a crisis or conflict.

7 Senator Scott: So, the value of having forces in South
8 Korea and Japan would be just wasteful. There would be no
9 ability to help them.

10 Admiral Richard: We would be the first to tell you
11 that those forces are important, but you have to backstop
12 them with a strategic deterrent to dissuade the opponent
13 from attempting to do something like that.

14 Senator Scott: Thank you.

15 General Dickinson, are we on pace, given what we expect
16 from the President's budget to be able to defeat Chinese and
17 Russian goals in space?

18 There is no question they each want to dominate in this
19 area, and do you believe that we will be able to stop them,
20 given our current spending plans and policy?

21 General Dickinson: Senator, I think at this point, we
22 are on a glide path to that capability. Our ability to
23 protect and defend on orbit is that those capabilities and
24 capacities are growing, and I think that is very important
25 as we look to the future. But to answer your question, I

1 think we are on a glide path.

2 Senator Scott: So, do you believe that going forward,
3 that we are going to be expected, like the President's
4 budget doesn't have much of an increase in Defense spending,
5 do you think we are going to, that is going to be enough to
6 pursue the goals that you have?

7 General Dickinson: Well, so, for the command over the
8 last year, we have done our first analysis of the
9 requirements, if you will, for the combatant command, and I
10 have delivered those requirements to the Department of
11 Defense, as well as the services, and in those requirements,
12 I have identified my priority in terms of developing better
13 space domain awareness in terms of being able to understand
14 what is happening in the space domain, to characterize that,
15 and to understand what our adversaries and competitors are
16 doing there.

17 So, in terms of the budget for this year, I think it is
18 satisfactory for what we are doing right now.

19 Senator Scott: Admiral Richard, do you think we are
20 clear enough about our relationship with Taiwan and our
21 interest in making sure they remain, you know, independent
22 of Communist China?

23 Admiral Richard: Senator, ultimately, I would defer to
24 the Department of State and OSD policy in terms of what is
25 the best course of action there.

1 What I am committed to doing is making sure that the
2 U.S. military has the ability to set the appropriate
3 operating conditions and deter Chinese strategic
4 capabilities to allow us those options for the rest of the
5 force and the nation.

6 Senator Scott: So, if we are in the position that we
7 believe that we can deter them from doing something, why are
8 they doing all the flyovers now? Why is Communist China
9 doing, taking the aggressive action they are taking against
10 Taiwan right now?

11 Admiral Richard: Sir, fundamentally, I would defer.
12 You would have to ask China that question, right, but that
13 is a point that gets back to deterrences linked, right. We
14 have to pay attention all the way down into thresholds below
15 conventional armed conflict to make sure that we are putting
16 these things on the right trajectory in the long term.

17 Senator Scott: I want to thank both of you and thank
18 all the men and women that serve with you.

19 Thank you, Mr. Chairman.

20 Chairman Reed: Thank you very much, Senator Scott.

21 Senator Kelly, please.

22 Senator Kelly: Thank you, Mr. Chairman.

23 Admiral Richard, thank you for your testimony, General
24 Dickinson.

25 I would like to discuss for a couple of minutes, the

1 ground-based strategic deterrent effort. The program to
2 replace the Minuteman-III and its command and control system
3 is significant. Often, large programs like this are
4 threatened when there is budgetary pressure.

5 Now, my understanding is that there is not a cost-
6 effective way to modernize the Minuteman-III and that the
7 60-year-old missile needs to be replaced.

8 Can you explain in detail, Admiral Richard, why that
9 is, and what new capability are we going to get with GBSD.

10 Admiral Richard: Senator, first, I would offer the
11 Department has sent several pretty detailed reports to
12 Congress that go into that, and so I would refer to those.

13 But biggest picture, I need a weapon that can fly and
14 make it to the target. Minuteman-III is increasingly
15 challenged in its ability to do that. There is almost no
16 possibility of an upgrade on that, relative to the threat.

17 In particular, I would draw attention to the cyber
18 capabilities, right. Minuteman-III is a very old system
19 that we have to be able to cyber defend, and the GBSD will
20 come with a great improvement inside its cyber defenses, as
21 well as the overall operational availability, redundancy and
22 reliability of its command and control.

23 Senator Kelly: Well, thank you.

24 And the Russians, you know, have been modernizing, you
25 know, their systems. Can you highlight some of the upgrades

1 that they have been making in delivery system, command and
2 control, and their warning systems, just top-level.

3 Admiral Richard: I mean, Senator, they, across the
4 board, are operating new equipment. They are on their
5 second generation of a new ballistic-missile submarine.
6 They have a new ballistic missile for that; it is quite
7 capable. They have a very impressive, solid-fueled
8 intercontinental ballistic missile, brand new. They have
9 new road-mobile missiles. They have up-gunned their
10 bombers. They have new weapons off their bombers. This is
11 in addition to the novel capabilities that I described in my
12 opening statement. They have new command and control. They
13 have new warning. They are exercising at a level we haven't
14 seen since the Cold War. President Putin plays in those
15 exercises, and we are seeing readiness levels like we have
16 not seen before. So, is an across-the-board, comprehensive
17 improvement in their strategic capabilities; again, about 80
18 percent complete right now.

19 Senator Kelly: And on the B61 Mod 12 program underway,
20 going to give us more accuracy of smaller CEP for that
21 weapon and that weapon system. Do you see this mod of the
22 B61 being able to last here for the next 20 years or so or
23 do you see a point where we are going to have to find a new
24 air-launched, ballistic bomb?

25 Admiral Richard: So, for the B61, right, I do think

1 that modernization program will serve our well going into
2 the future. That is a gravity weapon, as you well know, and
3 that is, in particular, of importance to NATO, in terms of
4 our extended deterrence and assurance commitments. So, I am
5 satisfied that that weapons system is going to serve us
6 well.

7 Senator Kelly: Thank you, Admiral.

8 And General Dickinson, when we spoke last week, we
9 discussed the importance of cooperation and communication
10 with other space-faring nations to deal with the common
11 challenges that we face with orbital debris, a challenge I
12 had to deal with myself, personally, on a number of
13 occasions. You know, these communications are critical for
14 advanced warning, as well, test launches with competitors
15 like Russia and China.

16 I want to, just in the remaining time in your view, you
17 know, how good are the current structures for communications
18 with Russia and China concerning orbital debris, but also,
19 when they launch unexpectedly, it could be to put payloads
20 in orbit, and if the communications systems are not
21 adequate, what could we do right now to improve those?

22 General Dickinson: So, Senator, we, as I mentioned --

23 Chairman Reed: Microphone, please.

24 General Dickinson: So, we communicate with our
25 competitors in terms of what is going on in the space

1 domain.

2 Could it be better?

3 Yes, it could be better. But we communicate to them
4 electronically through a website called space.org that has a
5 catalog or has information on there that we can alert them
6 to a potential collision in space. So, we do communicate in
7 that way, but I do believe that we could improve upon that
8 as we go forward.

9 Senator Kelly: And that would be true for a test
10 launch, as well?

11 General Dickinson: Yes, it would be for test launches,
12 as well, so that we can make sure that we understand
13 intention, as well as what activity they may be doing in the
14 space domain so that we can ensure that we provide a safe
15 environment for space operations.

16 Senator Kelly: Thank you, General.

17 General Dickinson: Thank you.

18 Chairman Reed: Thank you, Senator Kelly.

19 Senator Peters, please.

20 Senator Peters: Thank you, Mr. Chairman.

21 And to both of you, thank you for your testimony here
22 today and your service to our country.

23 General Dickinson, in your opening remarks, you
24 addressed space-situational awareness in the context of your
25 work with the Department of Commerce and its open-

1 architecture data repository. So, my question to you is,
2 could you ever foresee space-situational awareness being a
3 wholly Commerce function with Space Command playing a
4 supporting role, and if not, why?

5 General Dickinson: I think as we look to the future
6 and, really, the current situation that we have now, as I
7 mentioned, 32,000 pieces of debris, objects on orbit. As we
8 move forward, I do believe that we will see that as a, or we
9 should see that as a purely administrative type of function
10 in terms of tracking objects in the space domain.

11 My job at the U.S. Space Command is to not only
12 understand that, but also be able to characterize what we
13 are seeing in the space domain so we can understand what our
14 adversaries' intention may be and their capabilities. But I
15 see in the future that as we move towards that, that that
16 could be a wholly administrative-type function, similarly to
17 what the FAA does right now, in terms of making sure the air
18 domain is safe.

19 Senator Peters: So, if that would be a Commerce
20 function, you would be supportive of that, as long as you
21 are playing the role that you mentioned?

22 General Dickinson: Yes.

23 Senator Peters: On the same topic, in 2020 alone, I
24 any Senator Kelly mentioned his involvement with it in
25 space, as well, but the International Space Station had to

1 perform three maneuvers to being hit by space debris.

2 Has the command, your command undertaken any
3 initiatives to contend with space debris by participating in
4 commercial efforts, such as the LSAD launch that occurred
5 last month?

6 General Dickinson: We are looking at those types of
7 opportunities right now, because that could contribute to
8 our ability to understand the domain better.

9 Senator Peters: Very good.

10 And, as well, General, I have another question for you.
11 Much like the economy at large, our operations in space are
12 going to be facilitated not by just the purchase and the
13 operation of hardware, but also the utilization of services
14 that will allow us to maintain a robust presence in space.

15 For example, in Michigan, we have a company called
16 ATLAS Space Operations in Traverse City that is involved in
17 the assistance of launch operations, communications, other
18 types of services, and they are doing very innovative work
19 in that area. Under your command, how is SPACECOM utilizing
20 private sector partners, who can provide a variety of these
21 kinds of capabilities?

22 General Dickinson: So, Senator, out at Vandenberg Air
23 Force Base, which is part of the U.S. Space Command, we have
24 a Commercial Integration Cell where we are working every day
25 with the commercial industry in terms of understanding

1 capabilities that they are bringing online, as well as on-
2 orbit type of activities. I think we have close to 90
3 different companies that we work with out there.

4 Senator Peters: Great.

5 Admiral Richard, in your opening remarks, you described
6 the submarine-launched nuclear missile as necessary to
7 address regional deterrence challenges from both, China and
8 Russia, but increasing the flexibility, in your words,
9 quote, providing a more credible deterrent to a limited
10 attack against the United States, end of quote.

11 Could you explain what you mean by, quote, more
12 credible, and does a submarine-launched cruise missile fill
13 that capability gap to our extended deterrence posture?

14 Admiral Richard: So, sir, when I say more credible,
15 that was in relationship to the low-yield, submarine-
16 launched ballistic missile aspect of that. You can't deter
17 if you can't get to the target, and that weapons system has
18 a better ability to do that it. It makes it more credible
19 in the eyes of the other party.

20 The second part, on the sea-launched cruise missile, it
21 goes after more the large disparity that we have in non-
22 treaty accountable weapons between us and the Russians. I
23 use that term very specifically. Sometimes, they are used
24 as strategic versus non-strategic. I think that distinction
25 is increasingly irrelevant and a large number of so-called

1 strategic weapons are a direct threat to the homeland, in
2 addition to our forces regionally, and to our allies.

3 The sea-launched cruise missile would give us an
4 ability to not rely on host nation's support and give us an
5 ability to, again, provide an effective counter to the
6 disparity that we see in non-treaty accountable weapons.

7 Senator Peters: Well, as you know very well,
8 deterrence depends on capability, on credibility, and
9 communication. And when a Virginia Class submarine launches
10 a Tomahawk cruise missile into Syria, for example, China,
11 Russia, and other nuclear powers can now credibly recognize
12 that such launches are carrying conventional munitions.

13 My question is, if attack submarines reacquire the
14 capability to launch nuclear weapons, then, does that mean
15 that Beijing and Moscow will need to worry about every
16 missile launch within the range of their territories, and
17 are you concerned, therefore, that this added ambiguity
18 might lead to some sort of miscalculation?

19 Admiral Richard: Senator, what I would offer is I
20 think that it is a fundamental error to try to determine
21 what the payload is on any weapons system by assigning it to
22 a particular trajectory. You can make any trajectory carry
23 any payload.

24 The nation has long had a cruise missile, nuclear
25 cruise missile capability. Russia and China, or Russia has

1 it today.

2 So, the idea that we will somehow sort out what a
3 threat is, based on its profile, I think, is a flawed idea
4 to begin with and we certainly don't characterize anything
5 based on the flight profile coming at us.

6 Senator Peters: Great. Thank you, Admiral.

7 Chairman Reed: Thank you, Senator Peters.

8 I recognize Senator Sullivan, please.

9 Senator Sullivan: Thank you, Mr. Chairman.

10 And, gentlemen, thank you for your service and your
11 testimony today.

12 You know, I was in a hearing last week, an oversight
13 hearing, and one of my colleagues on the other side of the
14 aisle was kind of putting out this number of 10 percent, his
15 estimate of the military was extremist, racist. I think in
16 my experience, and I am still serving in the Marine Corps
17 Reserves, that number is absurdly high. It wasn't based on
18 any data. That would make about two hundred or 250,000
19 members of the active force supposedly fitting within that
20 category, which I think is a disparagement of our men and
21 women in the military. I got a little heated in that
22 hearing last week, because I am really tired of hearing
23 about, you know, what, supposedly is all the bad things
24 about the members of the military, when I think it is some
25 of the finest young men and women in America serving,

1 volunteering to serve.

2 Is that your experience, 10 percent, 1 in 10, 250,000
3 active-duty forces are somehow extremist, racist?

4 It is an absurd number, but it gets thrown around in
5 the newspaper. And I am trying to get the men and women,
6 like you, who is served for decades to kind of give me your
7 view.

8 Admiral, General, I know that is not the purpose of the
9 hearing, but I think it is really important, particularly
10 for the men and women that you are leading, and that we have
11 oversight of, to let them know that we don't think a huge
12 majority of the force is extremist; obviously, some of my
13 Senate colleagues do, which I think is absurd.

14 Can I get your view on that.

15 Admiral Richard: Let me go first on that one. I am
16 very confident that the number of extremists in my forces is
17 zero and let me explain why I say that.

18 The Department has made it clear for decades that we
19 don't tolerate that. My forces are a little bit different.

20 We have certainly done everything Secretary Austin has
21 told us to do. He has made it very clear what the standards
22 are, but it is reiterating a standard.

23 Every person in my organization has to have a security
24 clearance, for starters, right. And when you fill that form
25 out, and I have been filling it out for 40 years, there is

1 an extensive battery of questions designed to get after that
2 very point. And then somebody goes and investigates you,
3 and then they go talk to all of your references, and then
4 they go talk some more, hunting for that very thing.

5 We don't care what the source of extremism was. Those
6 date back to Communism is actually what they were looking
7 for when I first came in, and today they will even go look
8 at your social media. If you can't pass that part, I don't
9 even see you. Then on top of that, in my forces, we have a
10 personnel reliability program for these. So, you now have
11 peer-monitoring brought in and a number of other standards.

12 So, if there are any extremists in my organization,
13 one, they hide it very well, and, two, it is just a matter
14 of time until I get to them.

15 Senator Sullivan: So, you are saying that you agree
16 with me, these are some of the best men and women in America
17 and to be besmirched by the media or a senator, 10 percent
18 is ridiculous.

19 Admiral Richard: Sir, I will just explain what the
20 standard is that we uphold. It is contrary to the Uniform
21 Code of Military Justice. It is essential for good order
22 and discipline. And my forces meet the highest standard of
23 that, that DOD requires.

24 Senator Sullivan: Great. General, your view on this?

25 I know you have a lot of experience, given your decades

1 in the U.S. Army.

2 General Dickinson: Thank you, Senator.

3 So, in my organization, a very similar organization to
4 the U.S. Strategic Command. So, space, as we all
5 understand, and I know we have talked about it many times in
6 terms of the classification or the security clearances that
7 are required within my organization to be able to do the
8 things that we do in the space domain and terrestrially.
9 And so, we have the same rigor in terms of some of the
10 questions that are asked during their security clearances in
11 terms of getting them to the proper clearance level so they
12 can perform their duties within my command.

13 I would tell you right now that we have done everything
14 that Secretary Austin has asked us to do in terms of
15 training and awareness, but in my organization, I would say
16 that number is zero. And we are very keen and aware of
17 these types of activities or what would lead to those, and
18 we understand that very well.

19 So, in terms of years of experience, yes, I would tell
20 you that in the formations that I have had throughout my
21 career, I have not seen that. So, I believe that it is
22 close to zero in my organization, if not zero.

23 Senator Sullivan: Thank you.

24 But nothing nearing 10 percent. Ridiculous, in my
25 view, but, obviously, you guys, you gentlemen would agree.

1 Let me just ask one final question. Admiral, it is for
2 you. As the North Koreans continue advancement of their
3 weapons systems, what can we do, are you concerned it is
4 going to outpace our ability to defend the U.S. homeland, I
5 am talking about the GBI system, and what can we do to
6 accelerate development of the next generation of
7 interceptor, and does it make sense to have 20 empty silos
8 right now at Fort Greely?

9 Admiral Richard: Senator, one, I think the nation has
10 the right standard and policy when it comes to missile
11 defense relative to rogue threats, with North Korea right
12 now being the defining example of that. Obviously, that is
13 something we may go review, but right now, I would start off
14 with, I think that is the right pace.

15 We will have to pace that threat. I certainly support
16 Northern Command's requirements to be able to do so and
17 would look for the Department, understanding resource
18 limitations and other mission sets that are in competition
19 for us to maintain that standard in terms of our missile
20 defenses.

21 Senator Sullivan: Thank you.

22 Thank you, Mr. Chairman.

23 Chairman Reed: Thank you, Senator Sullivan.

24 Senator Blumenthal, are you prepared? Senator
25 Blumenthal.

1 Senator Blumenthal: Thanks, Mr. Chairman.

2 Thank you both for being here. Thank you for your
3 extraordinary service.

4 Admiral Richard, we have interacted before on a number
5 of submarine-related events and I thank you for your
6 service, particularly in that area.

7 And General Dickinson, thank you for embarking on this
8 very promising, important new area.

9 At a recent hearing, I expressed my concern about white
10 supremacist actions and extremism in our military and I want
11 to just be clear that I said at a prior hearing, it was a
12 very small percentage of our troops that potentially were
13 involved in these activities.

14 I am sure it is well under 10 percent, as I believe I
15 indicated then, but I think any percentage of white
16 supremacist or violent extremism in our military is
17 intolerable and unacceptable. I hope you both agree.

18 Admiral Richard: Senator, I certainly agree with that,
19 right, that extremism, you are either on team Constitution
20 or you are not, and if you are not, you have no place in our
21 military.

22 General Dickinson: Senator, I agree, as well. There
23 is no place for it in our military today.

24 Senator Blumenthal: As you know better than all of us,
25 General, much of the operational information utilized within

1 SPACECOM remains very highly classified and is often
2 restrictive in terms of access. And I have been an advocate
3 in many other areas of sharing more information with the
4 American public so that they understand the threats and the
5 risks in this area. Right now, I think there is almost no
6 awareness among the American public.

7 What can be done to make the American public better
8 informed and aware of the challenges, to use a euphemism,
9 that exists in your domain?

10 General Dickinson: Senator, thanks for that we.

11 And I would say that is probably, in my words, one of
12 the most visible things that U.S. Space Command has done
13 over the last 20 months, in that we have been able to
14 articulate and call-out some of the activities that we have
15 seen in orbit that we would determine, at a minimum,
16 dangerous; at a maximum, or the other end of the scale, as
17 threatening.

18 And what I am describing is what we have seen over the
19 last year, 2019 and 2020, with the on-orbit activities of
20 the Russians, in terms of conducting an on-orbit anti-
21 satellite test, as well as a ground-based missile, anti-
22 satellite test that was threatening or demonstrating a
23 capability that they have.

24 And so, in other words, Senator, our ability to be able
25 to discuss that, like we do in many other domains, air,

1 land, and sea, is very important to what we do, and really
2 working very closely with the intel community, we have been
3 able to do that.

4 So, in terms of classification and being able to
5 declassify that so that we are able to communicate and talk
6 not only to the American public about it, but also our
7 allies and partners around the world to make sure that we
8 understand what they are building and what their future
9 intent could be.

10 Senator Blumenthal: That was my next question.

11 Do you think that there are procedures for
12 declassifying information that make our ability to share
13 information with our allies and partners operational?

14 General Dickinson: So, Senator, we are working that
15 every day. Just the fact, last year, that we were able to
16 come out publicly and describe what I just mentioned about
17 their on-orbit activities is a big step in the right
18 direction.

19 We continue to work within the Department, as well as
20 within the intel community, so that we can continue to do
21 that and do it more frequently.

22 Senator Blumenthal: Thank you.

23 Thank you very much, Mr. Chairman.

24 Chairman Reed: Thank you, Senator Blumenthal.

25 Senator Hawley, please.

1 Senator Hawley: Thank you, Mr. Chairman.

2 Thank you, gentlemen, both of you for being here.

3 Thank you for your many years of service to our country.

4 Admiral, can I start with you, and I want to talk about
5 little bit about the B-2 Whiteman Air Force Base in my home
6 state of Missouri, of course is proudly home to the B-2
7 bomber. In your testimony, you wrote that the B-2, and I am
8 quoting you now, is the only heavy-payload, penetrating
9 stealth bomber in the world, able to hold at risk, heavily
10 defended, hard, and deeply buried targets.

11 I just want to give you an opportunity to talk about
12 why this is so important for our strategic deterrence and
13 what it is we need to do to ensure that the B-2 continues to
14 be effective until the B-21 comes fully online.

15 Admiral Richard: Well, sir, that summarized it, in
16 terms of, that is the only capability that we have to hold
17 certain targets at risk that are very important in our
18 ability to deter that, right. It is known that that weapons
19 system can do that. That changes decision calculus of
20 people that we are trying to deter.

21 And so, I applaud Air Force efforts, right, to maintain
22 the B-2 all the way through, with its full range of
23 capabilities, while simultaneously taking all the steps
24 necessary to bring the B-21 in on time, such that the nation
25 maintains this capability going into the future.

1 Remember, in addition to its penetration capabilities,
2 one key aspect that the bomber leg adds is its flexibility;
3 the fact that we can move it all over the place. That
4 provides a deterrent benefit.

5 It certainly provides assurance to allies. You see us
6 doing that with these forces today. And it is signaling.
7 It is visible, right. We can directly show our, it is the
8 best way we have to directly show our resolve as a nation by
9 what we do with this piece of the triad.

10 Senator Hawley: Very good. Thank you.

11 Let's talk about China a little bit. You said earlier
12 today that what it is going to take to deter China is going
13 to start to be additive to what we have to do with Russia.
14 Can you just elaborate a little bit on what you mean by
15 additive.

16 Admiral Richard: So, fundamentally, I am required to
17 deter all nations that I am assigned, all the time, right.
18 I don't get to do it one at a time. And I have an
19 obligation, such that we are able to meet all the objectives
20 simultaneously with everybody that is involved.

21 Until recently, it was pretty reasonable to assume that
22 with the margins, right, for uncertainty that are built into
23 our strategic forces, it would be reasonable to assume you
24 had sufficient residual capability to deter any other
25 lesser-included case. That is about to no longer be true,

1 and that is what I am talking about. I can give you some
2 specific numbers in closed session, Senator.

3 Senator Hawley: Very good. Thank you for that.

4 Tell me this, what do you think that China's progress
5 from a nuclear dyad to triad says about their view of a no-
6 first-use policy?

7 Admiral Richard: Senator, that, along with everything
8 else in my mind, is fundamentally inconsistent with a no-
9 first-use policy and the implied minimum-deterrent strategy.

10 But maybe more importantly than independent of what
11 their intent is, it certainly gives them the capability, if
12 they choose to, to any number of possible employment
13 strategies. So, even if that was the basis of the decision,
14 it still allows a very large range of possible employment
15 strategies, independent of why they got it to begin with.

16 Senator Hawley: Very good.

17 Admiral, tell me, many of those who advocate for
18 shrinking or eliminating our ICBM force are also strong
19 proponents of international arms control, and I am just
20 wondering from a Defense point of view, is it your view that
21 cutting our ICBM force would help or hurt our negotiating
22 position in future arms-control negotiations with Russia or
23 China.

24 Admiral Richard: Senator, the way I approach that,
25 fundamentally, that negotiation is the responsibility of the

1 Department of State, with input from OSD policy, and I would
2 defer to them on what the best negotiating strategy is.

3 I just have to look at what the actual capabilities are
4 now and what I have to have to deter that. So, my strong
5 advice is arms control would be excellent. Additional arms
6 control would reduce the threat. Get the arms control in
7 place first before we then decide to take reductions in our
8 capability.

9 Senator Hawley: Let me ask you one final question and
10 here in my remaining seconds about the danger of a
11 simultaneous conflict. In your testimony, you wrote that
12 prudence dictates military planners consider and account for
13 the complex threat environment enabled by the strategic
14 cooperation of Russia and China.

15 Tell me how you are thinking about the threat of
16 simultaneous conflicts in both, Europe and Asia, and how
17 that informs your thinking of what we are going to need to
18 maintain strategic deterrence in the coming years.

19 Admiral Richard: Deterring opportunistic aggression
20 going into the future will be a challenge that we haven't
21 faced on this scale in a long time. So, if we are engaged
22 in one theater, other folks sensing opportunity. And it is
23 not only for their own individual aims. We also have to
24 think through what they might do in cooperation with each
25 other, because while they both have different national aims,

1 both of them are inconsistent with us and it is to both of
2 their advantage for us to potentially give constrain in a
3 particular area.

4 So, it is not only opportunistic; it is in combination.
5 This three-party world that we are in is something we have
6 never faced before, and we have a lot of work to continue to
7 do to think our way through that.

8 Senator Hawley: Thank you very much for that and your
9 testimony.

10 And I will have some questions for you, General, for
11 the record, and thank you for being here and thank you for
12 your service.

13 Thank you, Admiral.

14 Thank you, Mr. Chairman.

15 Chairman Reed: Thank you, Senator Hawley.

16 Senator Blackburn, via Webex.

17 Senator Blackburn: Thank you, Mr. Chairman.

18 And thank you all for the time today to talk a little
19 bit.

20 General Dickinson, I want to come to you. SPACECOM,
21 the Southeast is home to three of our nation's top-12
22 university programs for aerospace engineering. So, we are
23 very excited and think it is appropriately placed, having
24 SPACECOM there in Huntsville. We look forward to hosting
25 this in the future and hearing more about SPACECOM. And I

1 appreciate some of the vastness of your area of operations,
2 and it really is, quite literally, limitless. And I see a
3 range of reach in space and look forward to that.

4 So, let me ask you this, is there a role for SPACECOM
5 in traditional Departments of Commerce and Transportation-
6 like functions, such as the shaping of the domestic
7 ecosystem of space activity, space traffic management,
8 launch licensing, and other space activities, because we
9 know that, certainly, the Chinese are already working on
10 this.

11 General Dickinson: Senator, I think what you just
12 described is appropriate. I think as we look at the rapid
13 commercialization of space, just from the United States'
14 perspective, in terms of numbers of capabilities and
15 satellites going into orbit, that the actual administrative
16 piece to that, which is the licensing and those types of
17 functions, absolutely are part of the Whole-of-Government
18 type of activity.

19 For me at U.S. Space Command, my job is to make sure
20 that I provide that secure environment through my ability to
21 understand what is going on in the space domain in terms of
22 what our competitors, potential adversaries are doing there,
23 in terms of characterization of that, and understanding what
24 their intentions might be.

25 Senator Blackburn: Where are you in working with the

1 Department of State and our partners and our allies to
2 create norms of behavior in space, to include beyond near-
3 Earth orbit?

4 General Dickinson: Senator, I work very closely with
5 OSD policy and the Department of Defense on helping to
6 characterize maybe what we would think would be norms of
7 behavior, but the work there is actually with the Department
8 of State and how they are characterizing that.

9 My job in U.S. Space Command is to make sure that I
10 provide them that type of information that would show them
11 or illustrate to them what those activities or behaviors would
12 be on orbit, in terms of our adversaries and competitors.

13 Senator Blackburn: Okay. Now, if there were to be a
14 conflict that began in or either transitioned to space, how
15 do you interpret your current responsibilities to defend
16 U.S. commercial assets?

17 General Dickinson: So, my "protect and defend"
18 responsibilities in the space domain are one of my
19 fundamental mission sets for this command and I do that in a
20 number of ways. One is understanding the environment. Two,
21 is communicating that to, in this case, a commercial entity
22 so that they are aware of that.

23 And we do that. We are integrated very well with some
24 of our commercial partners out at Vandenberg Air Force Base
25 in one of my subordinate commands, and so we work every day

1 to do that. But we would do that in a timely manner so that
2 we are able to make them aware of activities.

3 Senator Blackburn: And so, you believe these
4 responsibilities are appropriate in scope and scale?

5 General Dickinson: So, Senator, I would take that in
6 terms of my responsibilities and direction from the National
7 Command Authority, on which assets, in particular, to
8 protect, in that case, and in terms of the resources, I have
9 resources today that are growing in capacity and capability
10 over the next few years to help me.

11 Senator Blackburn: Okay. And then, when it comes to
12 development and enhancement of our space-based sensor layer,
13 what would you say is the top threat that we should be
14 hedging against and what should be our priority investment
15 to counter that threat?

16 General Dickinson: So, the pacing threat, the pacing
17 challenge for, in the space domain is like it is in the
18 other domains, which is China. They are growing capability
19 and capacity as we have seen over the last several years.
20 If you look at just the gross number of satellites that the
21 Chinese have today, based on what they had just, you know,
22 10 years ago, they have gone from, back in 2010, they had
23 about 70 satellites on orbit; today, they have well over
24 400.

25 Senator Blackburn: Okay.

1 General Dickinson: And so, we know that is growing in
2 capability and capacity to probably be over a thousand by
3 year 2030. So, they are the pacing threat for us in the
4 space domain, just as they are in other domains.

5 Senator Blackburn: Okay. I have a couple questions
6 for Admiral Richard. I will submit those as a QFR.

7 Thanks, Mr. Chairman.

8 Chairman Reed: Thank you very much, Senator Blackburn,
9 and now let me recognize and salute the patience of Senator
10 Tuberville.

11 Senator Tuberville: Thank you, Mr. Chairman. Thank
12 you.

13 I know they are getting tired. Look, they look hungry
14 and they probably need to go to the restroom, probably, so I
15 won't be that long.

16 First of all, thank you for your service. I can't
17 imagine starting a new team from scratch. I can't imagine
18 that. I never had to do it in football. And I just had 120
19 players, and, General, you have got your hands full, and
20 thank you for your service, and an important service.

21 And, Admiral, I like your forcefulness in terms of,
22 hey, we need to modernize at the end of the day. You have
23 had a team for a long time, or we have had a team that is
24 getting old and we need new players and we need new
25 equipment.

1 And I like what our secretary says. We can afford
2 survival, and he is exactly right. All the money we are
3 spending, we can afford it.

4 You know, growing up, we were all in a space race,
5 General, and we are in a new one now. It is a competition
6 that we have to win. The Chinese have weaponized space,
7 sadly.

8 Many in our country don't understand that American life
9 depends on our secure and reliable access to space, whether
10 it is the GPS on our phones or watching a football game.

11 Admiral Richard, you are a native of the great state
12 and, General Dickinson, I know you worked at Huntsville as
13 Army Missile Command, and you both understand firsthand that
14 Alabamians stand firmly behind our men and women in uniform.
15 Alabama's industry stands behind our military.

16 Alabama and Redstone Arsenal are ready for Space
17 Command, but many people in this room probably don't
18 understand Redstone. Redstone has been involved with space
19 operations for 70 years. NASA's only facility on a military
20 base is the Marshall Space Flight Center. The largest
21 consumer of space products is the U.S. Army and the Army
22 Missile Command and has been at Redstone Arsenal since it
23 was established in 1962.

24 Space technology won't just be developed by the
25 Government to outpace China and Russia, which is going to be

1 a challenge. We need private industry. The area around
2 Redstone boasts 800 suppliers and contractors building the
3 very latest in space technology.

4 I was at Redstone 3 weeks ago and Redstone has the land
5 for Space Command to grow as your mission expands. It has
6 dedicated 64 acres behind the fence as Space Command and the
7 base has temporary spaces for you right now if needed.

8 So, General, I am looking forward to you calling the
9 Great State of Alabama your home, and, Admiral, you are
10 welcome to come any time.

11 General Dickinson, thank you for your productive call
12 last week. My colleague asked how much of a civilian
13 workforce we might move to Huntsville. I would like to
14 follow-up on that question. First, how much do your
15 civilian workforce have you hired and how many people do you
16 intend to hire in the future?

17 General Dickinson: Senator, my approved manning
18 document is about 60 percent civilian. To date, we have
19 hired probably about, not quite a third of that into the
20 command. The command, right now, is about a third of what
21 our in strength will be. So, we are a little over 600.
22 Some of that is contractor. Some of that is civilian. And
23 some of that is military.

24 And so, as we look to the future, you know, we are
25 absolutely looking at incentives that we can provide to our

1 civilian workforce. They are absolutely the bedrock of the
2 command today and into the future. And so, we will look at
3 how we can try to incentivize our civilian workforce in
4 terms of making the move to Alabama.

5 But I can't give you, like I said earlier, I can't give
6 you a prediction on what that percentage will be. There are
7 a lot of factors that go into it. What we can do, though,
8 is try to incentivize them through motivation, in terms of
9 wanting to work with the command, and some other things that
10 we will consider, as well.

11 Senator Tuberville: Well, we are proud that the
12 Secretary of Air Force selected Alabama as the home for
13 Space Command.

14 And how do you see the National Guard implementing into
15 that, at all? Do you, at all, in the future in Space
16 Command and Space Force?

17 General Dickinson: Senator, as we speak now, the
18 Reserve component is a very important part of the U.S. Space
19 Command. As a matter of fact, when we stood up or we
20 established about 20 months ago, one of our biggest elements
21 or components within the command was the Reserve component.

22 It was the Reserves and the National Guard. That is a
23 very important part of the command. They bring a great deal
24 of expertise and knowledge to the command.

25 I see that in the future, too. We will always, as part

1 of Space Command, have the Reserve component as an element
2 within the command.

3 Senator Tuberville: Admiral Richard, Russia and China
4 are prioritizing investments to compete and win across the
5 range of strategic capabilities, especially with regard to
6 nuclear and space capabilities.

7 Do you believe that we are behind the curve?

8 Admiral Richard: Senator, I have what I need to do to
9 deter, to do what the President has asked me to do, but I
10 need it modernized, right. There is no remaining margin.

11 We cannot extend or delay any of the modernization
12 programs for me to continue to say that in the future.

13 Senator Tuberville: Do we have the technology we need?

14 Admiral Richard: Senator, yes, right now.

15 The one area that we are working the hardest on to make
16 sure we are fully taking advantage of new technologies is in
17 the nuclear command and control system. We have got the
18 next 5 years locked in pretty tight.

19 Trying to make sure that we take full advantage of
20 technological development both, from the Commercial Sector
21 and the Government Sector, will be keys to improving that in
22 future iterations.

23 Senator Tuberville: Thank you very much.

24 Thank you, Mr. Chairman.

25 Chairman Reed: Thank you, Senator Tuberville.

1 Gentlemen, thank you for your testimony.

2 We will now close the open session, adjourn, as quickly
3 as possible to SVC-217 for the classified section.

4 And I have a conflict with the Appropriations
5 Committee. If the ranking member arrives first, he will
6 begin the initiation of the questions.

7 With nothing [inaudible] or no other business before
8 the committee in the open session, I adjourn the hearing.

9 [Whereupon, at 12:0 p.m., the hearing was adjourned.]

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