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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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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

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

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

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

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

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

Until 2019, Space Command was part of Strategic Command. As Space Command stands up as an independent command, I would like to understand what gaps or seams remain exposed as this transition moves forward and ensure these gaps are being addressed; in particular, General Dickinson, I would like to make sure that SPACECOM is fulfilling the space and ground functions you inherited from STRATCOM, with respect to missile warning and nuclear command, control, and communications. Ensuring we can
accurately warn both, Strategic and Northern Commands and
our senior leadership of a missile attack on the homeland is
of the utmost priority.

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

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

In addition, I would like to know your views on the
efforts by the National Nuclear Security Administration to
recapitalize their infrastructure to handle uranium and
plutonium. Some of these facilities date to the Manhattan
Project and are single points of failure in supporting your
mission. It is essential that we understand from you the
impacts, if any, on your operations. Finally, Admiral
Richard, we have been informed that STRATCOM will require a
submarine warhead in twenty thirties to replace one of the
two you have now. The replacement warhead is a joint
program with the United Kingdom, as their single warhead
begins to age out and it is important to our NATO Article V
commitments. I hope you will explain this system to the
committee.

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

Senator Inhofe, please.
STATEMENT OF HON. JAMES INHOFE, U.S. SENATOR FROM OKLAHOMA

Senator Inhofe: Thank you, Mr. Chairman.

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

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

Admiral Richard, and commander of the U.S. Strategic Command, your primary job is to ensure that our nuclear forces continue to deter the most severe threats to the survivability of our nation and the security of our allies'. Admiral Davidson told us some pretty worrying things about Chinese nuclear expanses just last month. You have been a big supporter of nuclear modernization and rightly so. We have delayed critical investments in DOD and the NNSA for
too long and now we are almost out of time.

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

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

Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Inhofe.

Admiral Richard, please.
STATEMENT OF ADMIRAL CHARLES A. RICHARD, USN
COMMANDER, UNITED STATES STRATEGIC COMMAND

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

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

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

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

Strategic deterrents enables every U.S. military operation around the world. Every operational plan in the Department and every other capability we possess rests on an
assumption that strategic deterrence and, in particular, nuclear deterrence is holding. If that fails, nothing else in the Department of Defense works as planned. STRATCOM sets the most foundational of operating conditions to allow the rest of the Joint Force to accomplish its mission.

And as a nation, I would assert, until recently, we have not fully considered the implications of engaging in competition through crisis or possible direct-armed conflict with a nuclear-capable adversary in nearly 3 decades. For the first time in our history, the nation is facing two nuclear-capable, strategic-peer adversaries at the same time, both of whom have to be deterred differently. Chinese and Russian advances are eroding our conventional and strategic deterrence. China, in particular, I submit, cannot be considered anymore, a lesser-included case in this context. The remarkable expansion of nuclear and strategic capability is evidence of their drive to be a strategic peer by the end of the decade. I would describe this as the strategic complement to the conventional capability growth that has been reported by INDOPACOM.

To me, they are at some kind of inflection point and are rapidly expanding their strategic capabilities. This has happened within the last year. They are well ahead of the pace to double their stockpile by the end of the decade,
and I would further submit that the size of a nation's weapons stockpile by itself is a very crude measure of what they can do with that capability.

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

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

I offer for China, it is important to look at what they do, not what they say, and where they are going, not where they are. And I have no choice but to view China as a
significant strategic threat and share Secretary Austin's assessment, China is the pacing threat for the nation and DOD at large.

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

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

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

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

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

4 I will just end with, in particular, it is the nuclear weapons stockpile and supporting infrastructure I think is hitting the wall first. Without the recapitalization of the existing weapons, we risk obsolescence and we could reach a point where no amount of money will adequately mitigate the operational risks we will be facing.
Final point. The nation has a longstanding, flexible, tailored strategy with a "well thought out" family of policies, capabilities, and postures. I welcome and call for a strategic review, but I advise against any individual policy or capability decision made, absent a complete understanding of the overall effects on that strategy, as it could risk a deterrence failure, which is the underpinning of everything we do.

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

[The statement of Admiral Richard follows:]
Chairman Reed: Thank you, Admiral Richard.

General Dickinson, please.
STATEMENT OF GENERAL JAMES H. DICKINSON, USA
COMMANDER, UNITED STATES SPACE COMMAND

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

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

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

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

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

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

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

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

In addition to this activity, on the part of our competitors, we are observing exponential growth in the commercialization of space. We currently track a challenging 32,000 objects in space. Nearly 7,000 of those objects are active or retired satellite payloads. Among the roughly 3,500 active satellites, the three largest single
constellations belong to the commercial companies: SpaceX's constellation for broadband internet capabilities, Planet Labs' Earth-imaging constellation, and Spire Global's space-to-cloud data analytics constellation.

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

In order to most effectively accomplish our assigned missions, U.S. Space Command has assessed our current capabilities and developed the requirements necessary to expand that capability where needed to meet our mission imperatives. We have passed those requirements along to the
services and the Department of Defense, in general. Our intent is to build the appropriate space operational architecture designed to achieve full operational capability, backed by a team of warfighters, who can outthink and outmaneuver our adversaries.

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

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

[The statement of General Dickinson follows:]
Chairman Reed: Thank you very much, General Dickinson. Before we begin, let me remind my colleagues that since this is a hybrid hearing, we will not use the early Byrd rule; instead, we will ask questions in order of seniority. They are 5-minute rounds. Please stick as closely as you can to the 5 minutes. You will see the timer before you. And I would ask all colleagues to mute their microphones when they are not speaking. Thank you.

General Dickinson, let me begin with what I think is a fundamental question. As I suggested in my opening remarks, you could also be called sensor command, as well as Space Command, because your responsibilities extend not only to space-based sensors, but also to many ground-based sensors, and to integrate them into a system, a coherent system. And so, bottom-line question, what are you doing to ensure that missile-warning infrastructure of radars and satellites are capable of determining whether there is a ballistic or a hypersonic missile attack on the United States?

Admiral Richard: Senator, thank you for that question. So, what we are doing at U.S. Space Command over the past 20 months or so since we stood up was looking at all the sensor, the entire sensor architecture worldwide in an attempt or in terms of understanding what sensors we have doing what specific missions. And what we have done over
the past year or so has been, we have taken the opportunity to take terrestrial-based sensors that traditionally do missile-defense type of activities from the different services, the Army and the Navy, and we have looked at them from the perspective of how can they contribute to our ability to understand what is going on in the space domain?

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

So, we have had good success over the last 19 months in doing that and we have demonstrated a couple of times, with regards to some of the actions that our competitors have been doing on orbit with a relative degree of success. So, we have taken the first step. The steps after that will be further integration of those capabilities and, again, working with each of the combatant commands in terms of prioritization of those sensors to be able to do both, space
domain awareness, as well as missile-defense missile warning.

Chairman Reed: Thank you, General.

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

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

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

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

I think we have repeatedly reported to Congress why it
is not cost-effective to do that, and from my viewpoint, I am not sure how they are going to be able to do it at all.

It is in the details. What they are doing to keep that weapons system functioning, remember, that is a 1970s-era weapons system that I am going to have to employ against 2030-level threats. We are down to two of a particular type of switch that is required to go in the launch-control centers. Nobody knows how to make it anymore; it is obsolete. It is not worth a company to put their effort into that. They have repeatedly been pulling rabbits out of the hat to work through those types of issues.

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

Chairman Reed: Thank you, Admiral.

Just one final question in my remaining time. Would a more robust arms control effort by the United States and, obviously, other countries, particularly the United States, complement your mission to deter an atomic attack or a nuclear outbreak?
Admiral Richard: Absolutely, Senator. I have said I will support any arms control agreement, less formally, I will take all I can get, right. If we actually have arms control and we are confident in it and it is verifiable it reduces the threat, it simply makes my job easier.

Chairman Reed: Thank you very much.

Senator Inhofe, please.

Senator Inhofe: Thank you, Mr. Chairman.

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

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

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

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

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

Admiral Richard: Senator, I will start with--

Senator Inhofe: Mike, we need your mike.

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

I don't have the luxury of deterring one country at a time. I am expected to deter all countries all of the time, and then on top of that, I don't have any remaining operational margin, right. We have exhausted the operational margin to allow us to delay this recapitalization as far as we went. I think it is important to remember that a lot of the quantities that we are talking about in these requirements were set many years ago when the threat level was actually much more benign than what we have seen now, and we have simply no operate, you are counting now on more and more things having to go right, and we are
counting on more and more that we precisely understand the threat we are at, and that is a standard we have never allowed in our history to happen inside the strategic deterrent force.

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

Senator Inhofe: That is good.

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

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

What is your feeling on that?

Admiral Richard: Well, Senator, what I would offer on
this, is, and I have testified to this effect before, look, the Nation can have any policy it wants, right. The Nation can have any --

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

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

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

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

I think the commander of EUCOM, General Wolters, mentioned, you will get a mixed response. I think he is correct. But I don't see the upside to it, is my point.
And so, I continue to recommend we not adopt that.

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

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

Senator Inhofe: Thank you so much.

Chairman Reed: Thank you, Senator Inhofe.

Senator Shaheen, please.

Senator Shaheen: Thank you. And Admiral Richard and General Dickinson, thank you for being here this morning and for your service.
General Dickinson, I want to begin with you. The Air Force is currently responsible for space traffic management for both, military and civilian satellites, and as we look at the proliferation of commercial satellites, that has become more and more challenging with situational awareness.

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

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

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

General Dickinson: Senator, thank you.

The space traffic management, as I mentioned in my opening remarks, you know, we, on a daily basis, we are tracking close to 32,000 pieces of debris, objects, satellites, whether they are active or old dead satellites,
and that is quite a, that is a big mission area within U.S. Space Command.

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

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

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

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

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

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

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

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

General Dickinson: Senator, so, I don't have exact numbers on estimates on the cost for the move to Huntsville. That is actually being determined now by the Department of the Air Force as the basing decision authority.

And with regards to the civilian workforce, I would categorize that as I don't have a good feel for that right now, because it will depend. I think the military, we can all agree, we are somewhat nomadic and we move where the military tells us to. When dealing with civilians, and I have done that in two previous jobs at the Missile Defense Agency, actually, in my last job at Space and Missile Defense Command, it is a little bit different when you are
talking about civilians. They have made life choices and
where they are currently living. And so, we will do
everything we can to incentivize them to make the move, but
I can't give you a percentage on how many that will be.

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

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

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

Chairman Reed: Your microphone, Admiral.

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

We were also pleased to see the New START Treaty be
extended, right. And so, you are pointing to one of its
primary benefits. In addition to the limits, it is the
transparency and the confidence now that we have in
understanding what that piece of the threat looks like.

What I would further encourage his efforts to get a similar
degree of control and accountability on the remainder of the Russian arsenal, all of which is something I have to deter.

Senator Shaheen: Thank you.

Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Shaheen.

Senator Fischer, please.

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

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

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

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

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

Admiral Richard: Senator, yes.

Senator Fischer: Microphone.
Admiral Richard: Senator, yes.
And it is not just the nuclear component. Part of what
I am trying to show is the relationship in all of our
elements of national power and how nuclear underpins that.

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

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

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

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

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

Do you think there are risks with leaning too heavily
on one part of the triad?

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

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

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

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

Admiral Richard: Senator, fundamentally, you don't deter by accounting. We don't hold up cards and say, I have more, I win.
It is important to know what they can do with that capability to understand, operationally, the threat that you face. It is important to remember that both, Russia and China have a unilateral ability to go to any level of violence that they choose to if they perceive that the stakes are high enough. And there is a point beyond which unlimited conventional capability will not be a sufficient deterrent.

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

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

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

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

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

Senator Fischer: Okay. Thank you.

Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Fischer.

And let me recognize, via Webex, Senator Gillibrand.

Senator Gillibrand: Thank you, Mr. Chairman.

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

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

General Dickinson: Thank you for the question.

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

I believe that, from a military perspective, that the
norms of behavior and what we do in space is very important.

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

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

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

Senator Gillibrand: Thank you.

In last week's cyber architecture hearing, the
subcommittee discussed the interoperability between our
cyber capacity and space operations. Given that your
command and CYBERCOM are both operating in highly complex
and ever-evolving environments, how integrated would you say
your efforts are with theirs, and how do you plan to
maintain a high level of integration with CYBERCOM as the threat landscape continues to change?

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

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

So, in other words, I have three general ops or headquarters that provide cyber capabilities to me. I have an integrated planning element in my headquarters and I also have a joint cyber center. So, I believe that we are very well integrated in terms of space- and cyber-type of operations.
And we are moving very quickly right now in terms of providing our requirements for activities in the cyberspace domain, as well as General Nakasone providing me with requirements of what he will need in his mission areas, as well.

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

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

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

I would tell you one of our biggest deterrence opportunities is with our allies and partners. We have, just since this command has stood up, we have just seen a bow wave, if you will, of allies and partners who want to come and be part of the U.S. Space Command and part of the space enterprise. And I think as we have seen in other domains, one of the greatest deterrence that we have is our
allies and partners and how we can all come together in a
very coordinated and synchronized manner in order to do
deterrence.

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

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

Senator Gillibrand: Thank you.

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

Chairman Reed: Thank you very much, Senator
Gillibrand.

Let me recognize, via Webex, Senator Rounds.

Senator Rounds: Thank you, Mr. Chairman.

Gentlemen, first, let me begin by just saying thank you
very much for your service to our country.
Admiral Richard, I believe that our traditional national defense rests on bedrock of the nuclear triad. I know that you have hit this a couple of times, but just in plain English so that folks that don't discuss nuclear triads on a regular basis, the hard-working Americans that are out there that are wondering why we have literally hundreds, if not thousands, of nuclear warheads, can you explain to the average guy that is working out there why it is that the triad is so important to our national security and why it is critical to invest in its modernization.

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

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

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

Yes, we like to throw a lot of numbers around. The bottom line is, what is available to the commander to deter
and what am I deterring against?

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

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

Admiral Richard: Senator, that is quite correct.

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

Admiral Richard: Senator, that is actually a great example of how rapidly China is changing, or at least how rapidly we are figuring it out, right. So, the answer to
your question is, yes, but that is only as of about a week ago that we became aware of that and started the process to understand the implications of that.

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

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

Senator Rounds: Thank you.

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

I would like to hear your thoughts on our ability to defend against these new threats and what you need in order to maintain unfettered access in space. And do you currently have the equipment and the resources necessary to protect the assets that we have in space right now from the threats from both, Russia and China?
General Dickinson: Senator, so I agree, Russia and China are proliferating in the space domain and one more than the other in terms of capabilities on space, not just numbers, but the capabilities, as well, and that, in particular, is China. So, China is absolutely our pacing challenge right now in the space domain.

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

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

Senator Rounds: Thank you.

Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Rounds.

Let me now recognize Senator Kaine, please.
Senator Kaine: Thank you, Mr. Chair, and Ranking Member Inhofe.

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

To the witnesses, thank you.

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

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

I think the demand for ISR is sort of endless, but ISR is so critical, obviously, to our combatant commanders
really getting a handle on and successfully executing any missions that they have.

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

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

General Dickinson: Thank you, Senator.

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

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

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

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

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

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

Chairman Reed: Thank you, Senator Kaine.

Let me recognize Senator Ernst, please.

Senator Ernst: Thank you, Mr. Chair.

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

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

I believe that is true, not only in the Navy, but also to our nuclear and space programs.
So, Admiral Richard, as we are looking at the modernization of our nuclear triad, again, going back to those resources, there is going to be a tremendous price tag. I think we all recognize that, but can you discuss for us the margins for delay and the potential costs that we would face if we try to spread out these recapitalization efforts over a period of years within the nuclear triad, not really getting to the heart of the issue.

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

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

I think this exactly what Secretary Madison meant when
he said, we can afford survival.

Senator Ernst: I think that is so brilliantly put. And not only can we afford it, we must afford this. I think that is a great way to say that, Admiral.

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

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

Senator Ernst: Thank you, sir.
And, General Dickinson, as well, as we talk about, you know, congestion in space, there are over 50 different space-faring nations and a number of space ventures, as you outlined in your opening remarks. Those will continue to climb.

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

General Dickinson: Thank you.

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

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

Senator Ernst: Thank you very much.

And I yield back. Thank you, Mr. Chairman.
Chairman Reed: Thank you, Senator Ernst.
Let me recognize Senator King, via Webex.

Senator King: Thank you, Mr. Chairman.

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

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

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

General Dickinson: Thank you, Senator.

So, my opinion on that is I believe the small satellites, many satellites in orbit provides us a very redundant, resilient capability. That would be very difficult to degrade once we have it established. It will provide us the ability to do many different types of missions, whether it is communications, whether it is ISR, whether it is missile-warning; those types of activities, I
think, will absolutely be more redundant, more resilient if we have, what I would call a mesh network, if you will, in a constellation.

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

Senator King: Thank you.

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

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

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

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

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

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

Admiral Richard: Absolutely, sir.

Fundamentally, a deterrent is not credible unless the
opponent or the other side does the calculation and comes up with, we can either deny that, missile defense is a good example of it, or we can impose a cost.

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

Senator Kaine: Well, the fundamental theory is that you have nuclear weapons in order to never have to use them. That is what it is all about, isn't it, Admiral?

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

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

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

Senator King: We will follow-up later. Thank you very
Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator King.

Senator Cotton?

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

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

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

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

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

Senator Cotton: Do you believe that it would be in the best interest of our nation to go to a sole-purpose nuclear policy?
Admiral Richard: Senator, no. I think, again, that that would remove a level of ambiguity that has had useful deterrent value to us. We have never, as a nation, chosen to do that.

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

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

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

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

Senator Cotton: Okay. Thank you for that.

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

I want to move to China. I know you have probably touched on some of these points, but I think there are a few questions that are more vital today. We know what Russia has. We know the threat Russia poses. They have posed it for 60 or 70 years.
But I think China is a menacing and rapidly growing threat both, in terms of the quantity and the quality of their nuclear forces. Give a sense just how fast their increasing the quantity of their nuclear forces.

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

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

Admiral Richard: Senator, that is correct.

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

Admiral Richard: Senator, that is correct.
The road-mobiles of both, Russia and China are challenges to make sure that you can maintain accountability of them.

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

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

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

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

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

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

And part of why I don't like the term missile sync is
there are a lot of things where we have forgotten how we got here. An example is bolt out of the blue, right. Highly improbable. We all agree with that. We would be the first to tell you that. We look at this risk every day.

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

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

Senator Cotton: That is right.

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

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

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

Senator Cotton: So, I will just conclude with a point I often make. We hear from some misguided and misinformed people on the left who might want to eliminate a leg of our
triad or eliminate the entire nuclear forces. This fanciful
idea that somehow we can rid the world of this weapons
system.

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

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

Senator Warren.

Senator Warren: Thank you, Mr. Chairman.

And thank you to our witnesses for being here.

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

So, Admiral Richard, you are the commander of U.S.
Strategic Command. Whose job is it to determine the nuclear
policy of the United States, your job or the President's
Admiral Richard: Senator, it is the President's job. I am obligated to provide my best military advice.

Senator Warren: I appreciate that.

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

Admiral Richard: Ma'am, I absolutely agree with that. I also request an opportunity to make sure that that review, and in fact, I would broaden it. I, again, state that I think it is a mistake to think of deterrence in pieces, that nuclear is somehow separate from conventional, is somehow separate from space and cyber. You have to look at all of that. And I would ask that it be fully threat-informed, and that I have an opportunity to provide the operational implications of potential policy choices.

Senator Warren: But you are going to do the operational part here. The President does the policy part. I appreciate your saying this, because you made some comments early in January that puzzled and, frankly, concerned me on this score. On January 5, after President Trump had lost his bid for re-election, you told some reporters that the purpose of a forthcoming Biden administration review of nuclear weapons policy should,
quote, validation that we like the strategy that we have.

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

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

Do I have your commitment on that?

Admiral Richard: Senator, you absolutely do.

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

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

Senator Warren: I appreciate that --

Admiral Richard: -- understands the risks it is taking in those decisions.
Senator Warren: And I appreciate that you will make
that risk clear so that the President and the Secretary can
work together to make a decision on this.

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

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

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

Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Warren.

Senator Tillis, via Webex.

Okay. Now, Senator Cramer.

Senator Cramer: Thank you, Mr. Chairman.
Thank you, Generals, both for your service and for being here.

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

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

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

We have talked a lot. You have answered questions, specifically, of course, about the ground-based strategic
deterrent and I appreciate that, and the fact that a delay in the modernization will cost both, money and perhaps security.

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

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

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

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

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

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

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

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

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

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

Fundamentally, I am confident in our NC3 cyber resiliency. It exists in relative isolation. It has tremendous redundancy. It gets the best intelligence. We have an
intelligence fusion center, thank you Congress for directing that, General Nakasone.

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

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

General Dickinson: Thank you, Senator.

So, that missile-warning architecture is a very integrated capability within U.S. Space Command. We provide that missile warning to U.S. Strategic Command on a daily basis and we work very closely together. I mean, in general, as you know, Senator, we respond out of U.S. Strategic Command when we stood up U.S. Space Command. And
so, our daily interaction, our daily operations together is very nested and synchronized.

Senator Cramer: I thank both of you.

Mr. Chairman.

Chairman Reed: Thank you, Senator Cramer.

Via Webex, Senator Manchin.

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

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

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

Admiral Richard: Senator, I would, in the end, defer to the operational commanders of those systems. For example, for Ground-Based Interceptor, that is Northern Command; however, from my vantage point, in terms of my mission sense and my overall responsibility in missile defense for advocating and operation support, we have an
adequate missile defense today. We do need to make sure that we pace it into the future against the threats that we are seeing.

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

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

General Dickinson: Thank you, Senator.

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

And we are also working very closely with the Missile
Defense Agency in growing capabilities on orbit that will help us address that problem, our dilemma with hypersonic weapons.

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

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

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

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

Senator, if I could real quick, I just want to add,
going back to the missile-defense piece, because it has been asked a couple of times. We are very satisfied with the way that Space Command has taken over the sensor commander function, right, by utilizing sensors across missile-warning, missile-defense, and space situational awareness. I am actually getting better missile-warning data and the nation is getting better utilization of the assets that it purchased.

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

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

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

What we are doing at U.S. Space Command is kind of
looking at the current command and control systems that handle these volumes of information and we are looking at ways that we can integrate those capabilities to provide an all-domain capability where we can see and do and act with speed of relevance to the situation at hand.

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

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

Chairman Reed: Thank you, Senator Manchin.

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

Senator Tillis: Thank you, Mr. Chairman.

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

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

Would you go back and give a little bit broader context
to the specific areas that you think that that threat is
real and maybe over what sort of timeline if we don't have
adequate resources or authorities, that we could reach that
tipping point.

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

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

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

You would think we had never done it before. If we
lose those talent bases, you can't buy it back. It will
take 5 to 10 years to either retrain and redevelop the
people or rebuild the infrastructure. We don't normally
face decisions like that.

Senator Tillis: Thank you.

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

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

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

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

We have a very close relationship with NASA. To your
mention of the International Space Station, a very close
working relationship, where we provide them with that information and they use that information to do, take whatever actions they may feel is appropriate to maintain a safe environment for the astronauts and cosmonauts onboard the International Space Station.

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

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

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

General Dickinson: So, Senator, my responsibilities lie in predicting and understanding where those objects are or the satellites are. The actual interaction with the commercial company on how they should conduct a space launch or on-orbit activities with their satellites really kind of goes back to a licensing capability or a licensing process
that I believe the FAA actually conducts with each of those companies before they launch.

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

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

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

And so, our synchronization and coordination of those activities, in particular, on orbit, and then for the other pieces, the other domains is very fundamental. But our
relationship and synchronization with U.S. Strategic Command
is very close.

Senator Tillis: Thank you.

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

Senator Tillis: Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Tillis.

Let me now recognize Senator Rosen, via Webex.

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

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

But I would like to speak a little bit about explosive nuclear weapons testing, because last May, the prior administration was reportedly considering resuming explosive nuclear weapons at the Nevada National Security Site, the only facility in the nation equipped to accommodate underground nuclear testing. And this is for the first time since 1992.
Nevadans do not want to return to a time when explosive nuclear testing was allowed in our state. It puts the health and safety of Nevadans in jeopardy.

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

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

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

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

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

But I further stated in it that I am concerned about the Nation's test-readiness and that I endorsed the lab director's calls, the NNSA, nuclear weapons labs, for a
national review of our test-readiness to understand where we sit.

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

So, what are you thinking in that realm?

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

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

But I would like to build now on what Senator Gillibrand spoke about earlier, a cyber mission in space. It is no secret, of course as anyone knows, our adversaries
see the value of the space domain, developing counterspace capabilities to undermine our interests. So, this week, I plan to introduce with Senator Blackburn, legislation to build a civilian cybersecurity reserve to ensure additional cyber capacity at our times of greatest need.

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

General Dickinson: Thank you, Senator.

In terms of the cyber piece that you mentioned earlier, I would say that is probably General Jay Raymond's avenue or area in terms of what the service, the Space Force provides. But as a combatant commander, I can tell you that I have the resources that I need right now and I am confident in our ability to protect my space missionaries, my critical space missionaries that I do each and every day.

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

Senator Rosen: Well, thank you.

I was able to, last year, help get the PROMOTES Act
passed, which has a junior ROTC STEM track now and we hope that that will help grow our young men and women as they join JROTC early to help build all of our capabilities and technology in the military. Thank you.

I yield back.

Chairman Reed: Thank you very much, Senator Rosen.

Let me recognize Senator Scott, please.

Senator Scott: Thank you, Chairman.

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

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

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

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

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

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

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

Senator Scott: Thank you.

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

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

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

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

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

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

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

Admiral Richard: Senator, ultimately, I would defer to the Department of State and OSD policy in terms of what is the best course of action there.
What I am committed to doing is making sure that the U.S. military has the ability to set the appropriate operating conditions and deter Chinese strategic capabilities to allow us those options for the rest of the force and the nation.

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

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

Senator Scott: I want to thank both of you and thank all the men and women that serve with you.
Thank you, Mr. Chairman.
Chairman Reed: Thank you very much, Senator Scott.
Senator Kelly, please.
Senator Kelly: Thank you, Mr. Chairman.
Admiral Richard, thank you for your testimony, General Dickinson.
I would like to discuss for a couple of minutes, the
ground-based strategic deterrent effort. The program to replace the Minuteman-III and its command and control system is significant. Often, large programs like this are threatened when there is budgetary pressure.

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

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

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

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

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

Senator Kelly: Well, thank you.

And the Russians, you know, have been modernizing, you know, their systems. Can you highlight some of the upgrades
that they have been making in delivery system, command and
control, and their warning systems, just top-level.

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

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

Admiral Richard: So, for the B61, right, I do think
that modernization program will serve our well going into the future. That is a gravity weapon, as you well know, and that is, in particular, of importance to NATO, in terms of our extended deterrence and assurance commitments. So, I am satisfied that that weapons system is going to serve us well.

Senator Kelly: Thank you, Admiral.

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

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

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

Chairman Reed: Microphone, please.

General Dickinson: So, we communicate with our competitors in terms of what is going on in the space
Could it be better?

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

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

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

Senator Kelly: Thank you, General.

General Dickinson: Thank you.

Chairman Reed: Thank you, Senator Kelly.

Senator Peters, please.

Senator Peters: Thank you, Mr. Chairman.

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

General Dickinson, in your opening remarks, you addressed space-situational awareness in the context of your work with the Department of Commerce and its open-
architecture data repository. So, my question to you is, could you ever foresee space-situational awareness being a wholly Commerce function with Space Command playing a supporting role, and if not, why?

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

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

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

General Dickinson: Yes.

Senator Peters: On the same topic, in 2020 alone, I any Senator Kelly mentioned his involvement with it in space, as well, but the International Space Station had to
perform three maneuvers to being hit by space debris.

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

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

Senator Peters: Very good.

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

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

General Dickinson: So, Senator, out at Vandenberg Air Force Base, which is part of the U.S. Space Command, we have a Commercial Integration Cell where we are working every day with the commercial industry in terms of understanding
capabilities that they are bringing online, as well as on-
orbit type of activities. I think we have close to 90
different companies that we work with out there.

    Senator Peters: Great.

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

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

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

    The second part, on the sea-launched cruise missile, it
goes after more the large disparity that we have in non-
treaty accountable weapons between us and the Russians. I
use that term very specifically. Sometimes, they are used
as strategic versus non-strategic. I think that distinction
is increasingly irrelevant and a large number of so-called
strategic weapons are a direct threat to the homeland, in addition to our forces regionally, and to our allies.

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

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

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

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

The nation has long had a cruise missile, nuclear cruise missile capability. Russia and China, or Russia has
So, the idea that we will somehow sort out what a threat is, based on its profile, I think, is a flawed idea to begin with and we certainly don't characterize anything based on the flight profile coming at us.

Senator Peters: Great. Thank you, Admiral.

Chairman Reed: Thank you, Senator Peters.

I recognize Senator Sullivan, please.

Senator Sullivan: Thank you, Mr. Chairman.

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

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

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

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

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

Can I get your view on that.

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

The Department has made it clear for decades that we don't tolerate that. My forces are a little bit different. We have certainly done everything Secretary Austin has told us to do. He has made it very clear what the standards are, but it is reiterating a standard.

Every person in my organization has to have a security clearance, for starters, right. And when you fill that form out, and I have been filling it out for 40 years, there is
an extensive battery of questions designed to get after that very point. And then somebody goes and investigates you, and then they go talk to all of your references, and then they go talk some more, hunting for that very thing.

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

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

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

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

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

I know you have a lot of experience, given your decades
in the U.S. Army.

General Dickinson: Thank you, Senator.

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

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

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

Senator Sullivan: Thank you.

But nothing nearing 10 percent. Ridiculous, in my view, but, obviously, you guys, you gentlemen would agree.
Let me just ask one final question. Admiral, it is for you. As the North Koreans continue advancement of their weapons systems, what can we do, are you concerned it is going to outpace our ability to defend the U.S. homeland, I am talking about the GBI system, and what can we do to accelerate development of the next generation of interceptor, and does it make sense to have 20 empty silos right now at Fort Greely?

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

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

Senator Sullivan: Thank you.

Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Sullivan.

Senator Blumenthal, are you prepared? Senator Blumenthal.
Senator Blumenthal: Thanks, Mr. Chairman.

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

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

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

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

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

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

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

Senator Blumenthal: As you know better than all of us, General, much of the operational information utilized within
SPACECOM remains very highly classified and is often restrictive in terms of access. And I have been an advocate in many other areas of sharing more information with the American public so that they understand the threats and the risks in this area. Right now, I think there is almost no awareness among the American public.

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

General Dickinson: Senator, thanks for that we.

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

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

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

Senator Blumenthal: That was my next question.

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

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

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

Senator Blumenthal: Thank you.

Thank you very much, Mr. Chairman.

Chairman Reed: Thank you, Senator Blumenthal.

Senator Hawley, please.
Senator Hawley: Thank you, Mr. Chairman.

Thank you, gentlemen, both of you for being here.
Thank you for your many years of service to our country.

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

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

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

And so, I applaud Air Force efforts, right, to maintain the B-2 all the way through, with its full range of capabilities, while simultaneously taking all the steps necessary to bring the B-21 in on time, such that the nation maintains this capability going into the future.
Remember, in addition to its penetration capabilities, one key aspect that the bomber leg adds is its flexibility; the fact that we can move it all over the place. That provides a deterrent benefit.

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

Senator Hawley: Very good. Thank you.

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

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

Until recently, it was pretty reasonable to assume that with the margins, right, for uncertainty that are built into our strategic forces, it would be reasonable to assume you had sufficient residual capability to deter any other lesser-included case. That is about to no longer be true,
and that is what I am talking about. I can give you some specific numbers in closed session, Senator.

Senator Hawley: Very good. Thank you for that.

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

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

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

Senator Hawley: Very good.

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

Admiral Richard: Senator, the way I approach that, fundamentally, that negotiation is the responsibility of the
Department of State, with input from OSD policy, and I would defer to them on what the best negotiating strategy is.

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

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

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

Admiral Richard: Deterring opportunistic aggression going into the future will be a challenge that we haven't faced on this scale in a long time. So, if we are engaged in one theater, other folks sensing opportunity. And it is not only for their own individual aims. We also have to think through what they might do in cooperation with each other, because while they both have different national aims,
both of them are inconsistent with us and it is to both of
their advantage for us to potentially give constrain in a
particular area.

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

Senator Hawley: Thank you very much for that and your
testimony.
And I will have some questions for you, General, for
the record, and thank you for being here and thank you for
your service.

Thank you, Admiral.
Thank you, Mr. Chairman.
Chairman Reed: Thank you, Senator Hawley.
Senator Blackburn, via Webex.
Senator Blackburn: Thank you, Mr. Chairman.

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

General Dickinson, I want to come to you. SPACECOM,
the Southeast is home to three of our nation's top-12
university programs for aerospace engineering. So, we are
very excited and think it is appropriately placed, having
SPACECOM there in Huntsville. We look forward to hosting
this in the future and hearing more about SPACECOM. And I
appreciate some of the vastness of your area of operations, and it really is, quite literally, limitless. And I see a range of reach in space and look forward to that.

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

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

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

Senator Blackburn: Where are you in working with the
Department of State and our partners and our allies to create norms of behavior in space, to include beyond near-Earth orbit?

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

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

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

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

And we do that. We are integrated very well with some of our commercial partners out at Vandenberg Air Force Base in one of my subordinate commands, and so we work every day
to do that. But we would do that in a timely manner so that we are able to make them aware of activities.

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

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

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

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

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

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

Thanks, Mr. Chairman.

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

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

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

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

And, Admiral, I like your forcefulness in terms of, hey, we need to modernize at the end of the day. You have had a team for a long time, or we have had a team that is getting old and we need new players and we need new equipment.
And I like what our secretary says. We can afford survival, and he is exactly right. All the money we are spending, we can afford it.

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

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

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

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

Space technology won't just be developed by the Government to outpace China and Russia, which is going to be
a challenge. We need private industry. The area around Redstone boasts 800 suppliers and contractors building the very latest in space technology.

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

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

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

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

And so, as we look to the future, you know, we are absolutely looking at incentives that we can provide to our
civilian workforce. They are absolutely the bedrock of the
command today and into the future. And so, we will look at
how we can try to incentivize our civilian workforce in
terms of making the move to Alabama.

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

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

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

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

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

I see that in the future, too. We will always, as part
of Space Command, have the Reserve component as an element within the command.

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

Do you believe that we are behind the curve?

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

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

Senator Tuberville: Do we have the technology we need?

Admiral Richard: Senator, yes, right now.

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

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

Senator Tuberville: Thank you very much.

Thank you, Mr. Chairman.

Chairman Reed: Thank you, Senator Tuberville.
Gentlemen, thank you for your testimony.

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

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

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

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