The subcommittee met, pursuant to notice, at 2:35 p.m. in Room SR-232A, Russell Senate Office Building, Hon. Deb Fischer presiding.

Members Present: Senators Fischer[presiding], Cotton, Sullivan, and Donnelly.
OPENING STATEMENT OF HON. DEB FISCHER, U.S. SENATOR
FROM NEBRASKA

Senator Fischer: The hearing will come to order.

The Strategic Forces Subcommittee meets today to review the Administration’s Fiscal Year 2019 budget request for missile defense spending, and to discuss related policies with our witnesses.

This is an incredibly important and timely discussion given the increasing missile threats facing our nation. Over the past year, we have witnessed dangerous advances in North Korea’s ballistic missile capabilities. Kim Jong Un conducted a record number of ballistic missile tests, including tests of two new systems that appear to have a range sufficient to hold the United States at risk.

The Administration has responded to this growing threat. In September, the Department of Defense submitted a request to reprogram about $400 million in Fiscal Year 2017 funds towards urgent missile defense requirements. Additionally, in November the Administration amended its Fiscal Year 2018 budget request to include almost $4 billion in additional funds for missile defense and defeat activities, including the expansion of our Ground-based Midcourse Defense system by an additional 20 interceptors by 2023. This robust support for missile defense continues in the Fiscal Year 2019 request, which includes almost a 25
percent increase in the Missile Defense Agency’s budget.

While I strongly support these increases, it is this
subcommittee’s responsibility to ensure they meet the war-
fighter’s needs today and invest in advanced technology to
stay ahead of tomorrow’s threats. Furthermore, while North
Korea ballistic missiles remain the principal threat against
which our homeland missile defenses are arrayed, it
represents only a portion of the broader missile threat. A
report released last year by the National Air and Space
Intelligence Center noted that Russia retains the largest
force of strategic ballistic missiles, while China has the
most active and diverse ballistic missile development
program in the world, and both nations continue to invest in
hypersonic and Cruise missiles designed to strike forward-
deployed U.S. forces and in some cases the homeland.

Testifying on these issues before us today is a
distinguished panel. We have John Rood, Undersecretary of
Defense For Policy; and General Lori Robinson, Commander of
U.S. Northern Command and NORAD.

General Robinson, as this is likely the last time we
will hear from you in anticipation of your retirement, I
also want to thank you for your 36 years of distinguished
service to this country. Thank you, ma’am. I think I speak
for all of us when I say it has been a pleasure to work with
you, and we wish you the best of luck.
We are also joined by Lieutenant General Sam Greaves, Director of the Missile Defense Agency; and Lieutenant General James Dickinson, who holds the title of Commanding General, United States Army Space and Missile Defense Command, among many others.

Thank you all for being with us today. We look forward to your comments.

And I would now like to recognize our Ranking Member, Senator Donnelly, for any opening remarks he would like to make.
Senator Donnelly: Thank you, Madam Chair.

I would like to thank all the witnesses; and, General Robinson, congratulations. Thank you for all your service to our country, for all the amazing things you have done for our nation to make it stronger.

I want to thank Senator Fischer for holding this hearing.

Let me also thank today’s witnesses for testifying. We very much appreciate your time and the work you do every day in the service of our nation.

Protecting our country, our forward-deployed troops, and our allies around the world is of the utmost importance, and the threats have not stood still since this subcommittee last met on this subject.

For just one example, as General Greaves and I discussed yesterday, North Korea has made rapid progress on its intercontinental ballistic missile capability. As we await the release of the Missile Defense Review, it’s important we take this opportunity to review the Fiscal Year 2019 budget request to ensure it provides sufficient resources to continue the work of getting our missile defense systems to perform reliably and effectively.

We also need to continue improving our sensor and
discrimination capabilities so we have a better picture of
the threats, and we need to continue to conduct smart
simulation and testing before we commit to buying new
technologies.

While we continue to improve the homeland defense
systems, we should not take our eyes off the ball when it
comes to protecting our deployed troops and reassuring our
allies and partners. The demand from our combatant
commanders for Aegis, THAAD, and Patriot batteries remains
high. We need to consider how we can best allocate these
systems and effectively train the war fighters who will
operate them to provide the protection that is needed in
today’s demanding environment.

Again, thank you for coming today. We look forward to
the dialogue and to your testimony.

Thank you, Madam Chair.

Senator Fischer: Thank you, Senator Donnelly.

Secretary Rood, I’d like to welcome you. If you would
like to make comments to the committee?
STATEMENT OF HON. JOHN C. ROOD, UNDER SECRETARY OF
DEFENSE FOR POLICY, DEPARTMENT OF DEFENSE

Mr. Rood: Thank you, Madam Chairwoman, Ranking Member
Donnelly, distinguished members of the committee. Thank you
for the opportunity to testify today on behalf of the
Administration’s Fiscal Year 2019 budget request.

With regard to the security environment, today the
United States faces an increasingly complex security
environment in which the central challenge to our prosperity
and security is the reemergence of long-term strategic
competition driven by revisionist powers in China and
Russia. Although they pose separate challenges with unique
attributes, both China and Russia seek to reshape the world
order and change territorial borders. Consequently, they
pose increasing security threats to the United States, and
our allies and partners.

Long-term competition with China and Russia requires
increased U.S. and allied and partner military investment
because of the magnitude of the threats they pose today, and
the potential that such threats will increase in the future.
We also must simultaneously strengthen our efforts to deter
and counter the clear and present danger posed by rogue
regimes such as North Korea and Iran.

The U.S. military remains the strongest in the world.
However, our advantages are eroding as potential adversaries
modernize and build up their conventional and nuclear forces. In particular, they are fielding a broad and expanding arsenal of new and more advanced missiles capable of threatening the U.S., our forces abroad, and our allies and partners.

Although this picture is unsettling and not what we desire, as Secretary of Defense Mattis has pointed out, and I quote, “We must look reality in the eye and see the world as it is, not as we wish it to be.”

The Administration has heeded this admonition in recent strategic reviews, in the National Security Strategy, the National Defense Strategy, as well as the Nuclear Posture Review. They reflect a consistent and pragmatic assessment of the threats and uncertainties we face in the future security environment.

Our task at DOD is to ensure that U.S. military advantages endure and, in combination with other elements of national power, that we are fully able to meet the increasing challenges to our national security.

With this as the strategic context, let me turn to a discussion of the Fiscal Year 2019 budget request for missile defense and the policies, programs, and capabilities it supports. The Department’s budget request supports the President’s direction set out in the National Security Strategy to deploy a layered missile defense system to
protect the American homeland from North Korean and Iranian missile threats. The request also supports regional missile defenses to protect our deployed forces, allies, and partners. Our missile defense system not only protects the United States, it strengthens the deterrence of war and the assurance of allies and partners.

Today the GMD, or Ground-based Midcourse Defense system, provides protection for the nation. General Greaves and others will discuss some of its attributes. But as noted by you, Senator Fischer, in September of last year, DOD requested the reprogramming of 2017 funding of more than $400 million to counter the North Korean missile threat. We appreciate the support that we received from Congress for this request.

A portion of these funds supports the important homeland defense activities, including initiating work on the procurement of 20 additional ground-based interceptors in Alaska as early as 2023, which will bring the total to 64 fielded interceptors. This reprogramming also funded a service life extension to the COBRA DANE radar in Alaska, and software upgrades to the Sea-Based X-band radar, which are both essential elements of our homeland defense. Last November, the President submitted an amendment to the Fiscal Year 2018 budget request for $4 billion of additional funding for missile defense, which includes construction of
a new missile field at Fort Greely, Alaska, and additional procurement funding necessary for the 20 GBIs.

The Fiscal Year 2019 budget request includes $9.9 billion for the Missile Defense Agency and $3 billion for air and missile defense programs in the services. This budget funds a more capable ground-based interceptor with the Redesigned Kill Vehicle; the deployment of new missile tracking and discrimination sensors in Alaska, Hawaii, and the Pacific region; and a new space-based kill assessment capability. These near-term investments will enable us to obtain substantially more performance and efficiency out of the GMD systems necessary to meet the evolving threat.

We are also moving forward to bolster homeland defenses against air and Cruise missile threats. In 2018, we will complete the first part of a two-phase effort to provide effective surveillance against missile threats to the National Capital Region. Doing so will enhance our ability to detect, track, and investigate suspicious aircraft, as well as Cruise missiles and, when necessary, cue our missile defense systems against the full spectrum of air threats. We are on track to begin the second phase of this effort in Fiscal Year 2019. We are also looking into technologies and concepts that could be used to provide scalable and deployable options for expanding this capability.

The Department’s Fiscal Year 2019 budget request also
continues deployment of regional missile defenses tailored
to meet missile threats to U.S. forces abroad and allies and
partners in Europe, the Middle East, and the Indo-Pacific
region. The budget enhances our regional missile defense
capacity through additional Patriot missiles as well as
THAAD, SM-3 Block IB, and SM-3 Block IIA interceptors. Our
focus is on developing and fielding capabilities that are
mobile and re-locatable, which allows us flexibility to
respond to a crisis or conflict wherever it emerges.

We are also encouraging our allies and partners in
Europe, the Middle East, and in Asia to acquire MD
capabilities and strengthen missile defense cooperation in
order to move towards a more interoperable and integrated
missile defense architecture.

Looking forward, it's clear potential adversaries are
modernizing and expanding their missile capabilities. We
must ensure that our missile defense investment and strategy
enable us to meet the most dangerous missile threats today,
while enabling us to counter future missile threats as they
expand. Areas for work on advanced technology include
improved discrimination in our sensor architecture, lasers
to intercept offensive missiles during their most vulnerable
boost phase of flight, evaluating space-based sensor
concepts, and the multi-object kill vehicle.

Let me conclude by saying that in an increasingly
complex and threatening security environment, DOD must sustain the capabilities needed to deter and defend against attacks on our homeland, U.S. forces deployed abroad, allies and partners. We must make the investments needed to address the ongoing erosion of our operational advantages and remain the preeminent military power in the world.

Thank you again for the opportunity to testify. I look forward to your questions.

[The prepared statement of Mr. Rood follows:]
Senator Fischer: Thank you, Mr. Secretary.

Your full statements will be included in the record.

General Robinson?
STATEMENT OF GENERAL LORI J. ROBINSON, USAF,
COMMANDER, UNITED STATES NORTHERN COMMAND AND COMMANDER,
NORTH AMERICAN AEROSPACE DEFENSE COMMAND

General Robinson: Ma’am, first of all, thank you very much. I am certainly honored to be sitting here and testifying with this committee, especially along with my brothers. It’s an honor for me.

What has been mentioned is the strategic environment and threats facing our nation continue to evolve, as you have both mentioned. Our adversaries are taking deliberate steps to extend their operational reach and are developing new capabilities to range targets in North America, in the United States and Canada.

At U.S. Northern Command and NORAD, we understand the urgency of keeping pace with these evolving threats. We also recognize that North Korea represents the most immediate threat to our homeland and therefore remains NORTHCOM’s highest priority.

I’m confident that the Ground-based Midcourse Defense system can defeat the threat today, and I’ve testified in front of every committee and have said so, and I remain confident. And I strongly support the continued improvements to the ballistic missile defense enterprise in order to maintain our advantage. We continue to work with the Missile Defense Agency, the intelligence community, and
other combatant commands as part of our collaborative effort
to out-pace the threat.

I’m grateful, quite frankly, for the committee’s
approval of the Fiscal Year 2017 above-threshold
reprogramming and support the budget amendment, and this
will increase the systems capability and capacity.

Under my NORAD responsibility, advanced Cruise missiles
with a low-rate arc cross-section represent a challenge to
our air defense systems. Russia continues to modernize its
delivery systems, long-range bombers, and strategic
submarines capable of launching from distances not
previously seen, reducing the indication and warnings we are
likely to receive from a combat launch. To defend against
these advanced Cruise missiles, we must make prudent
investments, as you both have talked about, and we
appreciate in advance sensors and defensive weapon systems
to protect our nation’s vital assets.

The men, the women, the warriors of U.S. Northern
Command and NORAD stand united in a common purpose, ready to
face the threats to the United States and Canada today, and
we are evolving to face the threats of tomorrow. Ladies and
gentlemen, you need to know, we have the watch.

Ma’am, sir, as you both have indicated, I’m getting to
have the privilege to retire. I have to tell you both that
after 36 years of serving my nation, and after these last
two years of having this sacred responsibility of defending
our nation, I want you both to know, I want all of you to
understand my gratitude and my heartfelt appreciation for
what you do to support NORAD and U.S. Northern Command every
day to our nation's Armed Forces -- soldiers, sailors,
airmen, Marines, civilians, and in my NORAD hat, the
Canadians. What you do each and every day -- you know,
people say to me, hey, thank you for what you do, but I know
I can’t do what I do if you don’t do what you and your back-enchers do each and every day.

So, thank you very much. I welcome your questions.

[Applause.]

[The prepared statement of General Robinson follows:]
Senator Fischer: Thank you, General.

General Greaves?
STATEMENT OF LIEUTENANT GENERAL SAMUEL A. GREAVES,
USAF, DIRECTOR, MISSILE DEFENSE AGENCY, DEPARTMENT OF
DEFENSE

General Greaves: Chairman Fischer, Ranking Member
Donnelly, distinguished members of the subcommittee, thank
you for this opportunity to testify on the Missile Defense
Agency’s budget request for Fiscal Year 2019.

I would first like to express our appreciation to this
committee for its support of the Department’s above-
threshold reprogramming request in September 2017, and the
Fiscal Year 2018 budget amendment which provided
reprogramming approval and emergency funding to enhance the
nation’s missile defeat and defense capabilities.

I’m also pleased to report that we are executing those
funds with the utmost urgency.

I would also like to take a second to thank the
thousands of men and women across government and industry
who work tirelessly every single day across the globe in
support of our nation’s ballistic missile defense system.

They remain our asymmetric advantage.

Over the past year we have been given a clear and
unambiguous message from the President that we are committed
to expanding and improving a state-of-the-art missile
defense system. So in my mind, the time for delays and more
studies and more objections is over. As I say it, the
threat has voted and continues to visibly vote through a demonstration of capabilities.

Last summer I laid out three Missile Defense Agency priorities to help guide our actions, our behavior, and program planning. First, we will continue to focus on increasing the system reliability to build more fighter confidence. Second, we will increase engagement capability and capacity. And third, we will address the advance threat.

I can tell you that the current ballistic missile defense system meets today’s threat. However, as the threat increases in both number and lethality, we need to ensure that our systems will remain reliable, remain secure from cyber security threats, and that the nation’s ballistic missile defense capability and capacity keep pace with that threat.

We currently have 44 emplaced ground-based interceptors for homeland defense. We plan to expand the fleet to 64 by 2023. In addition, improvements in sensor coverage to include the long-range discriminating radar in Alaska, the addition of a homeland defense radar in Hawaii, if it is approved, and planning for a homeland defense radar in the Pacific, as well as advanced discrimination improvements will enable the United States to improve protection of the homeland.
The agency will also continue its Redesign Kill Vehicle development efforts, enhance the stockpile reliability program, and expand the ground-based interceptor battle space.

Integrated space and terrestrial sensors for cueing, tracking, discrimination, and targeting ballistic missile threats are critical to improving missile defense architecture robustness. This budget will continue to fund the space-based kill assessment demonstration program to deliver a capability to confirm intercepts for improved defense of the homeland.

We are also continuing concept definition studies for space-based missile defense tracking sensors. And if pursued, space sensors will be able to detect and track traditional and emerging threats as part of the BMBS architecture.

We will continue to install the Aegis ballistic missile defense weapon system on Aegis ships and deliver Standard Missile-3 Block Ib interceptors. We're also supporting the European phase adaptive approach, providing coverage and protection of NATO European territory populations and our deployed forces against the increasing ballistic missile threat from the Middle East.

Our request will support continued integration of the SM-3 Block IIA missile, a co-development effort with Japan
into the Aegis ballistic missile defense weapon system, and
the pre-production of all up-rounds to support the initial
deployment for EPAA Phase 3.

Currently, there is an operational Aegis to shore site
located in Romania, and while we have experienced delays in
the military construction portion of the Aegis to shore
effort in Poland, we remain steadfastly committed to
delivery of that capability in support of EPAA Phase 3.

Finally, this budget request will continue the
exploration of breakthrough technologies for integration
into the BMBS, including discrimination improvements, multi-
object kill vehicle technology, hypersonic defense
technology, space-based interceptor technology, and
exploring higher-power lasers and interceptors that have
potential use against threat missiles in a boost phase of
flight.

As we evaluate the elements of the missile defense
system, we will actively pursue developing elements that
have multi-mission and department-wide utility and leverage
those systems once such activity with the F-35 that may have
residual capability for missile defense.

Madam Chairman and members of the subcommittee, I look
forward to answering your questions. Thank you.

[The prepared statement of General Greaves follows:]
Senator Fischer: Thank you, General.

General Dickinson?
STATEMENT OF LIEUTENANT GENERAL JAMES H. DICKINSON,
USA, COMMANDING GENERAL, UNITED STATES ARMY SPACE AND
MISSILE DEFENSE COMMAND/ARMY FORCES STRATEGIC COMMAND AND
JOINT FUNCTIONAL COMPONENT COMMAND FOR INTEGRATED MISSILE
DEFENSE

General Dickinson: Chairman Fischer, Ranking Member
Donnelly, and other distinguished members of the
subcommittee, thank you for your continued support of our
soldiers, civilians, and their families. I’m honored today
to testify before you to emphasize the importance of air and
missile defense to our nation, deployed forces, allies and
partners.

Air and missile defense threats continue to increase
both in quantity and offensive capability. With this in
mind, I appreciate your continued support for the nation’s
air and missile defense forces as we fulfill our role in
securing the nation today and developing future forces and
capabilities to counter tomorrow’s threats.

I’d like to briefly summarize the missions of the
organizations I command.

First, United States Army Space and Missile Defense
Command, Army Forces Strategic Command, SMDC/ARSTRAT, serves
as a force provider in support of our combatant commanders.
Our six priorities are to protect our homeland; provide
combat-ready forces and capabilities; plan and conduct
synchronized global operations; prepare or adapt leap-ahead
concepts and technologies; preserve and account for the
nation’s critical resources; and promote and foster a
positive command climate.

We provide not only air and missile defense forces but
also Army space forces. The Army has more than 4,000
military and civilian space cadre providing continuous
space-based capabilities and support to the warfighter
around the world, from satellite communications to missile
warning. SMDC/ARSTRAT’s future warfare center and technical
center develop space and missile defense concepts,
requirements, and doctrine. We provide training to the Army
space cadre and missile defense operators, and execute space
and missile defense research and development.

Within SMDC/ARSTRAT, we are collaborating closely with
the Army’s air and missile defense cross-functional team.
This effort is key to rapidly developing requirements and
ensuring these future capabilities transition quickly from
concept to prototyping to fielding. We are focusing on
capabilities that include mobile short-range air defense and
directed energy.

I also have the honor and the privilege to command the
Joint Functional Component Command for Integrated Missile
Defense, or JFCCIMD, which supports United States Strategic
Command by integrating and synchronizing global missile
defense operations.

In support of USSTRATCOM, JFCCIMD executes these five essential mission defense tasks: synchronizing operational-level planning; supporting ongoing operations; integrating training exercises and test activities globally; providing recommendations on the allocation of low-density, high-demand missile defense resources; and also advocating for future capabilities.

To accomplish this, we maintain close collaborative relationships with the geographic combatant commands, the Missile Defense Agency, the Office of the Secretary of Defense, the Joint Staff, and our allies and partners.

Lastly, it’s important to highlight that the challenges that we face cannot be overcome without the dedication of our most precious asset, our people. The service members, civilians and contractors, along with their families, stationed at home and globally deployed, provide support to the Army and joint warfighter each and every day. We are committed to providing trained and ready soldiers and civilians and developing effective space and missile defense capabilities to counter the threats of today and tomorrow.

I appreciate the committee’s continued support of missile defense operations, and especially your support of the men and women who deploy, develop, and operate these complicated systems. I have addressed in detail the full
range of these missions and how we are executing them today
in my written statement which, as you said, will be
submitted for the record. I look forward to addressing your
questions. Thank you.

[The prepared statement of General Dickinson follows:]
Senator Fischer: Thank you all very much.
We’ll begin our first round of questions.

General Robinson and General Greaves, you both have
talked about the defense capabilities that we have currently
with the most pressing threat that we have, and that’s North
Korea. But in your opinion, does this budget keep us on a
path to stay ahead of the threat that’s posed by North
Korea?

General Robinson: So, ma’am, I’ll talk first, and then
I’ll let General Greaves, since he is the smart one.
Here’s what I worry about. As I paid attention, we
appreciate the ATR that was given to us last fall. It
allows us to build capacity.

You and I chatted a couple of times. The fact is when
we looked at what KJU was doing last May versus what
happened through the summertime, this capacity and this
Redesigned Kill Vehicle will be very good for us in Alaska.
But at the same time, we’re not taking our eye off of having
a better discriminating radar.

So I would tell you that where we are and what we’re
doing right now keeps us ahead of what’s happening. We just
can’t take our eye off the ball.

And I’ll turn it over to General Greaves.

General Greaves: Chairman Fischer, the answer is yes.
As I mentioned, the current ballistic missile defense system
can meet today’s threat, and both the Fiscal Year 2017 ATR, the Fiscal Year 2018 budget amendment, and this budget, what it does is increase our capability or our capacity, more rounds in the ground, whether it’s ground-based interceptors or THAADs or Aegis 3 IBs, or ultimately the IIAs. So I believe we are perfectly positioned to defend against today’s threat.

The other thing the budget does, it helps us keep our eye on the advancing threat as North Korea in particular and Iran, as they both increase their capability, both in numbers and lethality. We must ensure that we look ahead at what capability will be required to stay apace of that threat.

In the area of space sensors or deploying the terrestrial architecture to space to supplement and augment what is on the ground, keeping track of that capability is quite essential.

Thank you.

Senator Fischer: And U.S. Force Korea, you’ve submitted that request. Can you talk a little bit about the request and the importance of receiving funding this year? You outlined it a little bit, but what is the priority for it this year?

General Greaves: It’s a very high priority. In fact, it was sensitized to me during my last visit to Korea with
General Brooks. We spent over an hour about two to three feet away, and he impressed upon me the importance of what’s in that GEON. What it does, a couple of things. One, it allows us to disconnect the fiber tie between the THAAD control center and its launchers to increase the battle space by moving the launchers out. It allows the Patriot capability to essentially use the power of the THAAD radar to expand its battle space. And then it does what I believe is extremely important, integrates THAAD and Patriot to essentially optimize use of the interceptor so you minimize or eliminate wastage. So for General Brooks being right there on the front line, that was extremely important to him to ensure that we expand the battle space and optimize use of those precious assets.

Senator Fischer: And usually items on the UFER list are there because they were judged to be of lower priority than the items that are included in the basic budget request. As I understand it, however, this funding appears on the UFER list as a result of timing. Is that correct?

General Greaves: That’s correct. The items you see on the --

Senator Fischer: It’s not a reflection of the priority, then, in this case?

General Greaves: Not in my mind.

Senator Fischer: It was all due to timing.
General Greaves: Yes, ma’am.

Senator Fischer: Okay. And, Secretary Rood, when do you expect to complete the MDR?

Mr. Rood: We’re in the process of doing that work now as we speak, Senator, and we’re looking in the near term here, in the spring, to finish that review. There are a number that you highlighted in your statement, some of the challenges in the threat environment that we face, so we’re eager to stay ahead of that threat, and we’re looking at some competing approaches to do that. But I expect we’ll have that shortly to you.

Senator Fischer: General Hyten noted some difficult policy questions in there, and we heard that boost phase term on an opening statement, that that’s a big challenge. Is the Department formulating policies to fill that gap so that you can address those challenges that are associated with the boost phase intercept as part of the MDR?

Mr. Rood: Yes. We’re looking at boost phase defense. As mentioned, this is a period during the missile’s flight when it is vulnerable to attack. It’s a challenging period to be able to execute an effective missile defense during that period due to the geographic constraints and other things, but we are looking at a variety of ways to try to accomplish that goal.

Senator Fischer: Including lasers?
Mr. Rood: Yes.

Senator Fischer: Thank you.

Senator Donnelly?

Senator Donnelly: Thank you, Madam Chair.

I want to thank all of the witnesses again for being here.

Undersecretary Rood, can you tell me how and why the review changed from the ballistic missile defense review to the missile defense review?

Mr. Rood: In terms of the rationale, Senator, the ballistic missile defense review was looking, of course, at ballistic missile defense, defense of missiles that fly over a ballistic trajectory. The thought process was that there are other forms of missile attack, Cruise missile attack, hypersonic glide vehicles and the like that were of a similar nature, and their challenge in the integrated air and missile defense systems that the services are pursuing to provide defense for our troops in the field, our allies and things of that nature, that it was important to see a connection there, and that was the rationale. Of course, it predated my arrival at the Department to do that, but I support that decision because of the integrated security challenge that we face with those threats.

Senator Donnelly: General Greaves, can you tell us how you contributed input into the missile defense review?
General Greaves: Yes, sir. We have key members of our staff from the engineering directorate, from our command and control battle management directorate, from other parts of the organization that have met frequently with other members within the Department to help construct the MDR. So we’ve been actively involved.

Senator Donnelly: General Robinson, can you please tell us how you helped contribute input into the missile defense review process?

General Robinson: Absolutely. I think what’s important as the warfighter and the one defending the United States, I’ve been able to contribute saying that I need to be able to detect, identify, track, and when necessary engage to defend the United States. So whether it’s ballistic missiles, whether it’s Cruise missiles, I’ve been able to give as the battle space owner my opinion and support my brothers here at the table.

Senator Donnelly: General Dickinson, same question.

General Dickinson: Yes. We’ve contributed in a large part to the effort in terms of JFCCIMD or the role that I play as the integrated missile defense element for U.S. Strategic Command. So we’ve been participating throughout the process, and what we bring to the process is we bring the representation of all the combatant commands along with NORTHCOM in terms of providing that expertise and that
perspective as we help to develop and shape the document.

Senator Donnelly: General Greaves, I understand you’re trying to accelerate the development and fielding of the Redesigned Kill Vehicle to address the growing threat, and what I would like to know is can you describe for us the ways you’re mitigating the risk in the program and ensuring we have a capability that is fully tested before it is deployed?

General Greaves: Yes, sir. This development will be a gated, milestone-driven acquisition in specific decision points along the way where the Department, not only the Missile Defense Agency, will assess readiness to proceed to the next phase. As an example, we completed the preliminary design review last May and used that as a decision point to convince anyone from the Cape, the then ATNL, Ms. Lord, and others within the building that we were ready to proceed with obligating I think it was $56 million worth of advanced procurement.

So what we have done is we have taken great care and we have heeded the NDAA language that addresses fly before you buy, with the specific wording that talks about assessing our readiness to make these decisions through either adequately assessing through tests or some other method before we make these production and deployment decisions. So we will make decisions after, as I mentioned, the
preliminary design review. We have the critical design
review coming up in December where another subset of that
funding will be assessed, and we’ve got a decision to make
after the first control test vehicle test, which will now
include not only a fly-out of the interceptor but a target
where we will maneuver to the target but then maneuver away
after convincing ourselves that we would have engaged the
target, and we will use that extra capability to assess how
well the interceptor does in the combined or expanded battle
space.

So the bottom line story, sir, is a gated, milestone-
driven, thoroughly reviewed assessment along the way.

Senator Donnelly: Thank you.
Thank you, Madam Chair.
Senator Fischer: Thank you, Senator.
Senator Cotton?
Senator Cotton: Thank you all for appearing today for
your testimony.

General Greaves, let’s talk a little bit more about
boost phase intercept. I will reveal that I am a major
proponent of this technology at the outset. The boost phase
missiles are big and they’re hot, so easy to detect, and
most importantly they’re over the bad guys’ territory, not
over ours. But they don’t come from just anywhere on earth.
There’s a limited number of countries on earth that have
this capability, and they intend to challenge us, and that boost phase intercept is at risk. Two obvious candidates are Russia and China. But is it fair to say that boost phase defenses are not really suitable against that threat because those countries are so large and they can position their missiles so far inland?

General Greaves: I would say so, yes. There is a geographical component of it. Boost phase intercept is, if not ideally, well suited to, say, the Korean Peninsula where, as you say, they can’t go far back.

Senator Cotton: Those are the magic words. So since Russia and China are not really susceptible to effective boost phase missile defense, where is it? North Korea. Maybe Iran as well, but North Korea is where it’s really suitable.

We talked about the lasers earlier. I want to come back to those in a bit.

What is the agency doing to explore the feasibility of airborne hit to kill defenses, specifically on UAVs? What kind of technology gap do we have today, given what we’re already capable of doing with a UAV, in air-to-ground attack that might help neutralize or at least mitigate the North Korea threat?

General Greaves: We are doing technology development. That is a phase of acquisition that we’re in, looking at
...both directed energy components as well as most likely
taking advantage of air assets which will already be in the
theaters in support of other mission sets, executing by the
COCOM to look at those assets, either sensors that could be
fed into the command and control battle management system
within our ballistic missile defense system, or at shooters.
They could be platforms for a new breed of fast interceptor
weapons that if placed appropriately or closely or in the
right position would be effective boost phase intercept
capability.

Senator Cotton: I’m a big fan of manned aircraft as
well, but manned aircraft have men and women in them, so
they have limitations, right? They have to land, they have
to eat, they have to sleep, so on and so forth. UAVs do
not. How high a priority is it for the agency to explore
the possibility that we could put an effective airborne net
over the Korean Peninsula with UAVs, both sensor platforms
and armed platforms in international waters, that could
potentially prevent North Korean missiles from ever getting
off of the launching pad?

General Greaves: It is a high priority within the
Missile Defense Agency, and the phase that we’re in now is
the technology piece of it. For instance, directed energy.

Can we get --

Senator Cotton: Can we get to directed energy for a
moment? So given what we can do with a UAV and air-to-
ground attack right now, what is the gap of taking that kind of demonstrated and deployed technology and deploying it in that kind of system against North Korea? And rather than aiming it at a terrorist’s home or car, aiming it at a North Korea missile on the launch pad?

General Greaves: The full answer will have to be coordinated with the combatant commander. But the gap or limitation is numbers and altitude and duration for the platforms of interest, and we have been doing some preliminary work on that over the past few years. And again, we’re not talking directed energy, but doing things such as beam pointing, stability, duration, and pseudo con ops development on it. But the actual placement above, around, in the vicinity of the targets, that’s a COCOM decision.

Senator Cotton: Okay. I just think it’s an extremely high priority, and most people probably underestimate how close we are to that kind of solution. I know that’s not the long-term solution. That’s why I want to put directed energy or lasers to the end of the conversation. I know that’s a little bit longer, but that’s ultimately the right solution, I think. Once lasers get shrunken down so the power source can actually fit on an aircraft like that, then I strongly support that as well. But I think that we have a
real opportunity in the very short term, not a matter of
months but not a matter of decades either, to if not
neutralize the North Korean threat with airborne boost phase
systems, at least severely mitigate it.

Thank you.

Senator Fischer: Thank you, Senator.

Senator Sullivan?

Senator Sullivan: Thank you, Madam Chair.

Just to follow up on Senator Cotton’s questioning,

General Greaves, is the technology available right now to do
that?

General Greaves: Sir, I’d say portions of the
technology are available. For instance, the current suite
of kinetic weapons that we have that could potentially
fulfill that role, they may not have the distance, the legs
as we call it, to execute even if we had the UAV technology
flying and ready to go. The concept of operations is
extremely important with respect to how many caps are
flying, where those caps are located, the resources tail
that goes behind it. But those are not my areas of
responsibility. That’s the COCOM. But the technology is
going closer.

Senator Sullivan: Okay. Good. That’s good to know.

General Robinson, thank you. I missed your opening
statement, but I understand you had an announcement, which
we’re kind of shocked and, wow, you’ve been an historic figure. I want to thank you for your service, the first female combatant commander in the history of the United States. Thanks for coming up to Alaska so much, we appreciate that. Recently at the event that we both were at, it was a great evening, so thank you. Thank you for your wonderful service.

I wanted to talk a little bit, I mentioned to a number of you, General Greaves as well -- so we made good progress in the last year, I think, with regard to a missile defense bill from this committee, passes in the NDA, fully funded in December. I was out on a code led by the current chairman, acting chairman of the Armed Services, Senator Inhofe. We were in Alaska. We went out to Fort Greeley. Part of the funding and the new authorization is for a new field out there, a lot of excitement. We’re on the ground looking at it. And then we hear five to six years, five to six years, before we get this field operational.

Now, we won World War II in a shorter amount of time. I can go through a whole list, and the Chair is very focused on these issues, not just in the military but building roads, whatever.

Why on earth should this take five to six years? And what do you need -- I’ve already talked to a number of you -- legislatively, because I’m sure it would be bipartisan,
to say, hey, the threat is here, the threat is here right
now, we need more capacity. A new field at Fort Greeley is
more capacity.

What can we do to help you make this so it’s not five
to six years, a half a decade, to get a new field
operational? We should try to get that done in a year and a
half, in a year.

So, General Greaves, I know I just pitched this to you
the other day, but we want to get this in the NDAA to help
you, to help America defend itself when there’s enormous
bipartisan support to do it. Five to six years, to me, is
lunacy. What can we do?

And I’ll throw this out to any of the witnesses.

General Greaves: Sir, if I can start, one update to
our conversation yesterday, the environmental impact
statement for Fort Greeley was done for the 100 interceptor
base when the field was first developed.

Senator Sullivan: Right, right.

General Greaves: So what we have to do for the
additional 20 is an environmental assessment, and that work
is just about done.


General Greaves: So that’s off the table.

The construction of the missile field itself is an
approximately 36-month effort, and the limitations involved
Senator Sullivan: They built the Alcan Highway in 11 months.

General Greaves: Yes, sir.

Senator Sullivan: I mean, there’s a long list of things in America we used to build quickly. Even three years is pretty darn long, right?

General Greaves: Yes, sir. And those three years are paced by the standard building timeframe up in Alaska, April through October. Now, there are things that could be done --

Senator Sullivan: We build year-round in Alaska on occasion.

General Greaves: Yes, sir. I was about to say there are things that can be done to essentially reduce that time, but the pacing item for the additional 20 GBIs in the ground are the GBIs themselves and the fact that they were being procured as all-up rounds with the Redesigned Kill Vehicle on top. And the approach, unlike what was done for the initial deployment of the initial interceptors, where we essentially have done exactly what you’re asking, we are taking a series of steps to ensure that what we are designing, building, testing, and delivering are more reliable, more maintainable, and for the long term more sustainable. And the acquisition of that under the current
set of guidelines -- we talked about that a little earlier -- is a gated and milestone-driven decision process.

So there are a number of folks, other entities within the Department that are involved, all the way from the operational testers to the folks in Cape to the folks in now A&S, acquisition and sustainment, that have to be involved to ensure that we are minimizing risk for this deployment. Now, if it was stated that there is some national security waiver to get them into the ground now and to provide the Missile Defense Agency and others with complete authority to do things, then we could, of course, move out faster at a higher level of risk.

But we learned some significant lessons from the deployment of the initial set of GBIs where we had to go back and complete the systems engineering for those rounds, and it’s taken us quite a bit of time to do it, and we have now completed that.

So the intent here is, keeping the threat in mind, we already accelerated the planned deployment of those GBIs by at least a year, to 2023, beginning in 2021, going out to 2023. But to accelerate it further brings increased risk. We feel very confident we can deliver it per the timeline that we got.

Senator Sullivan: Well, we want to work with you, all of you, on accelerating that.
Senator Fischer: Thank you, Senator Sullivan.

Secretary Rood, if I could continue with another issue on the missile defense enterprise, we know it struggled with the increasing portion of the MDA’s budget that’s going to procurement and taking money away from what really is the MDA’s chief purpose, and that’s research and development, and while we all support the significant increase in MDA’s top line that’s included in this year’s budget, I think it actually exacerbates this issue. MDA’s budget grew by almost $2 billion compared to the projections in last year’s budget, and about 45 percent of that increase went to procurement.

So, do you expect the MDR to look into this issue?

Mr. Rood: One of the things that is a challenge facing us in the Department is the Missile Defense Agency’s role, as you said, as a research, development, testing, and evaluation organization. They’ve also played a substantial role in operations and sustainment of systems once we have them in the field. And one of the organizational issues that we need to work through is the transition, at what point and how do we transition those capabilities to the services to manage. That’s been something the Department has struggled with for quite some time. For the past decade and a half, that’s been a discussion item.

So that is one of the things in the missile defense
review that we are looking at because we want to make sure that we get the balance correct, where MDAs work on near-term production -- that is to say, current systems -- and the balance about new system development, advanced capabilities. There’s always a balance about how much do you invest today and how much in future technology, and getting that balance correct is one of the things we’re looking at.

Senator Fischer: I hope you are able to do that.

Secretary, for all of Russia’s talk about how the U.S. missile defenses jeopardize strategic stability and justifies their violation of arms control treaties or pursuit of new nuclear weapons -- President Putin’s speech was the latest example of that -- isn’t it true that Moscow deploys a highly capable ballistic missile defense system?

Mr. Rood: They do. The Russians have maintained and indeed, at times when their budgets were most stressed, they continued to modernize the Moscow anti-ballistic missile defense system. I can say from the time when I previously served in government, in the 2001 to 2008 period, having routine discussions with the Russians about that, and they’re very blunt about the fact that that’s a high priority for them, to defend their capital and their people, where the majority of their population lives, against ballistic missile attack. Their basic argument is that they
don’t wish the United States to do that.

So I don’t accept that argument, and I would note that it’s a new argument from President Putin. In 2001, when the United States announced its withdrawal from the ABM Treaty, President Putin gave a national address in which he stated this posed no threat to Russia’s national security, and shortly thereafter he agreed to the conclusion of the Moscow Treaty, which at that time and to date is the largest reduction in strategic nuclear forces that our two countries have done.

So I read very carefully his recent statement, and we weren’t surprised by what was announced, certainly disappointed by the tone in that statement, but it’s a new discussion item, it’s a new characterization I think of what has led to those capabilities that we’re seeing from President Putin.

Senator Fischer: Do you have any thoughts that you can share with us on why you think President Putin is making this new case?

Mr. Rood: I think it is twofold. One, the context of that speech. The vast majority of it dealt with domestic issues. It was a bit of a -- State of the Union speech wouldn’t be exactly the right description of it, but it covered a whole range of topics, mostly focused on domestic issues. The tail end did focus on defense capabilities and
those particular capabilities.

Senator Fischer: Was it a political speech do you believe, then?

Mr. Rood: Yes, but it was more than that. It certainly was messaging to the rest of the world and the United States. So we should see it for both. And it was noteworthy that President Putin showed an animation of a missile strike on the United States. There is only one other country that has done that, North Korea. It was also noteworthy that it was not the only time or effort where the Russians have signaled things to us in the United States.

So I think while it was a political speech, it was also a message to the United States and the rest of the world about how they see us and that security environment and the capabilities that Russia is pursuing.

Senator Fischer: Thank you, Mr. Secretary.

Senator Donnelly?

Senator Donnelly: Thank you, Madam Chair.

General Dickinson, DOT continues to find the Army’s training of its soldiers to conduct testing of THAAD and Patriot is insufficient. In the Fiscal Year 2017 report, DOT found that flight testing in Fiscal Year 2017 demonstrated that THAAD training and documentation deficiencies worsened in Fiscal Year 2017, and Patriot training remained inadequate to prepare operators for
In your role as Commander of Army Space and Missile Defense Command, you have the responsibility to organize, train, and equip Army space and global ballistic missile defense forces. Do these insufficiencies concern you, and what are we doing to improve the training?

General Dickinson: So, the air and missile defenders in the Army in particular that I can speak for go through a very rigorous training program from the time that they come in to their initial assignments into their units. They go through a very detailed and comprehensive training strategy that’s codified and developed into what we call table training, very similar to what you may see in an armor unit that has tables 1 through 12 that are very prescriptive and descriptive in highlighting the tasks that need to be completed as they move along from an individual type of qualification as an individual soldier operator into a team or into a crew.

That spans from a Patriot unit to a THAAD unit, even to a GM unit, and I’m responsible for providing trained and ready forces to General Robinson in the GMD world in terms of the 100th and the 49th missile defense units. But I can assure you that that training development and that training proficiency is measured on a very frequent basis and is tested frequently on the actual equipment, and we also use a
host of simulations in order to develop that.

Senator Donnelly: So, then, is the Fiscal Year 2017 DOT&E report wrong in its conclusions?

General Dickinson: I wouldn’t say it was wrong. I would have to look closely at the scenarios in which they were evaluating those. I will tell you from my experience as a commander on the ground and through the evaluations that I run that the training proficiencies, particularly with the GM system, are at a very high state, and I don’t believe DOT&E was evaluating the GM soldiers. I know they were on the THAAD and Patriot.

General Robinson: So, Senator, if you don’t mind, I had the privilege to go to Fort Greeley and watch the soldiers, so I know from the time that I have to give some authorities that I have to the execution that happens on the ground at Fort Greeley for me to be able to sit down and talk to the soldiers that do this each and every day from a training perspective, I was very proud to watch them, and I know that this training goes on more than once a day, every crew, both from my command center in Colorado Springs down to the soldiers at Fort Greeley. So I just wanted to add that as a warfighter.

Senator Donnelly: General, I have great respect for them, too, and appreciate everything they do for our country. So how does the report come up with that
conclusion?

General Robinson: I’d have to go back and do like
General Dickinson said and go see what was the scenario that
they looked at, to give it a little more context, because of
what I watched and observed myself. So I owe you my best
military advice if I go back and re-read what was given.

Mr. Rood: If I might add also, I’d have to go back, as
I mentioned earlier, take a look at the report and see what
the scenario is. If it was a test scenario, for example,
sometimes they will look at that during one of MDA’s tests,
operational tests, or whether or not they were in the field
with the soldiers at that time. So the circumstances are
very important here.

But I can attest to the fact that at every level within
their training program, they are trained and certified.
It’s a series of written evaluations, a series of hands-on
evaluations, and then performance-oriented evaluations
conducted by, many times, outside agencies. What I mean by
that is outside their immediate chain of command. And there
are passes, and there are failures, and we do that routinely
both in the United States as well as to our deployed forces
overseas.

Senator Donnelly: Okay. Well, I am about out of time.
General Robinson, thank you again. As you head toward
retirement and travel around, when you go to the Air Force
Academy Notre Dame football game, I am curious as to who you’ll be rooting for.

General Robinson: Well, when your husband is an Academy graduate and your brothers are Academy graduates, there’s really not much that I can say. So, go Air Force.

[Laughter.]

Senator Donnelly: Thank you.

Senator Fischer: Thank you.

Senator Sullivan?

Senator Sullivan: Thank you, Madam Chair.

Mr. Secretary, good to see you again, and I’m glad you’re in this position. You have a background with a lot of expertise in these areas.

Let me ask on the missile defense review, when are you anticipating that being done? And the reason I ask is one of the things that we’ll be looking at with regard to the NDAA this year is building on what we did last year with regard to missile defense. We had kind of a breakthrough, I think, politically. We had a bill that was included as part of the NDAA which was a pretty significant advancement in missile defense that was very bipartisan. If you look at the history, missile defense has not always been bipartisan. As a matter of fact, it’s kind of been a partisan issue. But in this case, I think we made a breakthrough.

So I’m asking this because we will be looking at kind
of a missile defense 2.0 component of the NDAA, but we want
it to be significantly informed by the work that the
Pentagon is doing. So when do you anticipate that being
done, and is there a timeline we can hold you to that would
be in front of the work that we’re doing on the NDAA, which
you know is kind of already starting?

Mr. Rood: We’re at work now on the missile defense
review. There are a number of real challenges that we’re
still working through how specifically we will address in
that report. But I am pleased that we’ve come a long way.
So I think this spring we firmly plan to complete the
report. Right now we still have some internal discussions
in the Department to work through, different opinions, as
you’d expect, on certain questions. But I think we’ll have
something soon, and I understand your point about wanting to
take that into account, and the legislation that you
sponsored last year was very noteworthy in advancing the
ball down the field on missile defense, and the NDAA markup
schedule is certainly something that we would want to take
into account.

Senator Sullivan: Great. So do you think sometime in
April? I mean, I’m going to try to hold you to something
here, Mr. Secretary.

Mr. Rood: I wouldn’t want to commit to --

Senator Sullivan: I’m putting your feet to the fire.
Mr. Rood: I feel the heat already rising around me.

Senator Sullivan: Good, good.

[Laughter.]  

Mr. Rood: I wouldn’t want to commit to April to get it to the committee, but certainly we’ll be deeper into our discussions by that time. But I think in the next couple of months here, that is our intention to finish it.

Senator Sullivan: Okay, because we don’t want to miss -- I know there’s a lot of work, a lot of expertise going into this, but we want to keep in mind the vehicle that will move legislatively to enact some of these ideas and reforms you have in the review is going to be the NDAA. We’re going to be marking it up late April, early June, so I think it’s important to keep that in mind.

One element that we started on in last year’s legislation but as I talk to the experts, essentially everybody at the table and General Hyten, there seems to be, I would say, broad-based consensus on what we need to do more with regard to the next steps is space-based sensors that are integrating both kind of theater and homeland missile defense. Would that be something that all of you are in agreement on, the need to accelerate and really focus on that unblinking eye being able to track? Can I get an answer from each of you, if that’s something you think is worthy of us to be working with you on to pursue as a
1 program on our missile defense systems?
2
3 General Greaves: Senator Sullivan, absolutely. That is where we need to start.
4
5 Senator Sullivan: General Robinson, would you agree with that?
6
7 General Robinson: I do, but let’s not forget what we need to make sure is that we can do what we need to do today as we look to the future.
8
9 Senator Sullivan: I agree. Great point.
10
11 General Robinson: Okay. That’s the only thing that I would add to the conversation.
12
13 Senator Sullivan: Thank you.
14
15 Mr. Secretary?
16
17 Mr. Rood: Support in this year’s budget, we’re going to talk about doing some demonstrations on space-based sensor capability, as you know, and I think continuing to build on that is one of the things that we would like to do. We’ve got to look at that in the context of the other budget challenges as we put together the next five-year budget submission through the remainder of the year. But I certainly am supportive of continuing to explore that.
18
19 Senator Sullivan: Okay.
20
21 General Dickinson?
22
23 General Dickinson: Absolutely. I think the better you see the potential threat, the better we’ll be in the
redundancy and resiliency of having terrestrial-based sensors as well as space-based sensors that provide us that capability, especially as we look to an increasing, evolving threat. So the better information we have, the better opportunity and the better ability we’ll have to defeat it.

Senator Sullivan: Madam Chair, do I have time for one more question?

Senator Fischer: Okay.

General Greaves: If I could add, just really quickly, the integration of sensors in space with the terrestrial sensors are absolutely critical for the real threat that we see in front of us, the hypersonic threat, earth to burst tracking, and that’s why I said absolutely.

Senator Sullivan: Okay, great. Thank you.

Let me ask one final question that goes to the issue of testing. Again, what we tried to do in the legislation last year was really kind of give cover to all of you, not in terms of “failures” but to start to make the point not only to Congress but the American people that when you are testing, even if you’re not hitting a target or a successful flight, you’re learning, you’re learning. Our space program, you only have to look at that in the 1950s and 1960s. We were “failing” all the time. But we weren’t failing. We were learning.

Kim Jong Un, I would never want to use him as an
example, so I’m not, but the guy is obviously testing, failing, and learning. So we are trying to provide you with a sense from the Congress that, hey, the next time you do a big test, if it doesn’t hit the target, it certainly would be my intention not to drag all of you up in front of this committee and pound the table and look for the TV cameras and try to berate the people with stars on their shoulders that you’re failing, because you’re not failing, you’re learning.

So, we started that in last year’s NDAA. We’re trying to accelerate and put you on a schedule to do tests at least yearly. But what more can we do to help you in terms of your testing, even if you’re not always hitting the target? My understanding in talking to some of the experts, there will be certain tests that we’re stretching the envelope, from physics, from the activities that we’re doing, so much that you almost think that you’re going to miss the target anyway, and you’re still going to learn a ton.

So what more can we be doing to help you in the Congress so your culture of testing is not so worried about some of us calling you up here the next time there’s a missed target when we’re still learning tons?

General Greaves: Senator, I’d say what you’ve just stated is sufficient, in my mind, in that we’re not only learning when we don’t achieve an intercept, we’re also
delivering capability.

One example I’ll use is the recent SM-3 IIA mission that we just executed. We did not achieve an intercept. We believe we understand why we did not. But taking a look at what we did achieve, we achieved the demonstration of launching the SM-3 IIA from Aegis ashore, which is absolutely critical for the sites in Romania, in Poland, and if the Japanese continue with their acquisition of the two Aegis source sites. It’s a clear demonstration of that capability.

We also increased the battle space for that weapon system. We flew outside the organic radar’s capability and demonstrated feeding off-site sensor information, engagement-quality information to that interceptor as it was in flight.

We also certified the Aegis weapon system baseline that accompanied all that capability.

So we did not achieve that intercept, but we learned and we delivered capability. And what you have stated, sir, is sufficient in my mind because it lends a level of understanding that we do a lot more than just intercepts.

Senator Sullivan: Yes. Anyone else want to comment on that? One thing I’ve thought is you guys could do a background briefing to our wonderful friends in the media who love to look for “failures.” They don’t really
I understand the issues. And if you can background the media on this, that it’s not a failure, it’s a learning opportunity.

But anything else, Mr. Secretary? General?

Mr. Rood: I certainly concur with the approach. Throughout our history, the things where we’ve had some issues -- first of all, we generally have issues at some level in virtually every new cutting-edge endeavor. So I wholly concur with the thought process that you’re taking. And it’s not just us. I think in some ways when we look at our allies like Israel and their test regimen, they’re much more willing to go back out to the test range, begin a flight test regimen, work through their issues, understanding there are going to be bumps in the road.

So I certainly second the approach that you’re trying to encourage us to take.

Senator Sullivan: And as you probably know, Mr. Secretary, the Israelis are actually testing right now in the great state of Alaska, in Kodiak, Alaska, so they’re learning a lot there as well.

General Dickinson: Senator, if I could, just one final comment on that.

Senator Sullivan: Yes, sir.

General Dickinson: As General Greaves described in terms of learning a lot, first of all I think your approach
is right on. I think that’s what we need.

But the other piece that goes in, not only on the
learning piece to the technology under development, but
there is a big learning piece between the warfighter as well
as the material developer, in this case MDA. So that’s
actually a relationship that we enjoy on a daily basis
between the 100th and the 49th and the Missile Defense
Agency. That ability to have the warfighter working side by
side with the material developer in a test scenario, for
example -- and I’ll use the FTG-15 a year ago, where we
actually had a crew out of the 100th that actually executed
the warfighting piece of that test, launching the
interceptor for that engagement -- is the fact that we learn
a lot from the warfighter’s perspective.

And then we also are able to inform the material
developer on the road ahead, are they developing the things
that the soldiers can use. So I would just offer that.

Senator Fischer: My thanks to the panel today for your
testimony and your willingness to give us some pretty blunt
answers. We appreciate that, and I thank you all for your
service.

And thank you again, General Robinson, for your service
to this nation, and we wish you all the best.

General Robinson: Thank you, ma’am.

Senator Fischer: Thank you.
The hearing is adjourned.

[Whereupon, at 3:43 p.m., the hearing was adjourned.]