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**LEARNING FROM AND PREVENTING
FUTURE TRAINING MISHAPS**

HEARING

BEFORE THE

SUBCOMMITTEE ON READINESS

OF THE

COMMITTEE ON ARMED SERVICES
HOUSE OF REPRESENTATIVES

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LEARNING FROM AND PREVENTING FUTURE TRAINING MISHAPS

HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON READINESS,
Washington, DC, Tuesday, March 23, 2021.

The subcommittee met, pursuant to call, at 2:58 p.m., via Webex,
Hon. John Garamendi (chairman of the subcommittee) presiding.

OPENING STATEMENT OF HON. JOHN GARAMENDI, A REPRESENTATIVE FROM CALIFORNIA, CHAIRMAN, SUBCOMMITTEE ON READINESS

Mr. GARAMENDI. Good afternoon, ladies and gentlemen. I call to order this hearing of the Readiness Subcommittee of the Armed Services Committee.

First, some administrative and technical notes.

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Next, I seek unanimous consent to permit a noncommittee member to participate in this hearing after all committee members have had an opportunity to ask questions.

Is there objection?

Seeing and hearing none, so ordered.

And that noncommittee member will also have the normal 5-minute period.

Now, with that out of the way, a few opening remarks.

First, I welcome my guests. I will introduce you at the end of my short presentation.

While the Pentagon spends billions of taxpayer dollars on planes, ships, missiles, and other sophisticated weapon systems, more troops are dying in training than in combat, often in aging and poorly maintained war machines.

Between 2006 and 2018, 32 percent of Active Duty military deaths were the result of accidents, while 16 percent of service members who died during that time were killed in action.

Even as combat operations overseas have decreased, noncombat deaths have exceeded the number of military members killed in action every year since 2015.

The toll is staggering.

The National Commission on Military Aviation Safety, whose findings we will be discussing today, found more than 6,000 aviation mishaps between 2013 and 2019, killing 224 pilots and air crew.

The Government Accountability Office [GAO] is nearing completion of their review of 4,000 tactical vehicle accidents over the past 10 years that have led to the loss of 120 soldiers and Marines.

Of course, we continue to remember the 17 sailors lost in the Surface Navy collision of 2017 and another 9 who recently lost their life off San Clemente Island in California.

Let me be clear. Whether the trends are rising, falling, or facility unpredictably, any preventable loss of life is unacceptable. It is shameful that the nation with the most powerful military in the world loses more service members in noncombat settings than in war.

While the services focus on the conduct and the results of individual accident investigations, I fear that we are missing the bigger picture. These mishaps reveal that the basic elements of manning, training, and equipping are challenged across the force.

In addition to causing loss of life, this neglect is diminishing the readiness and effectiveness of our military.

We have seen in recent years that in order to pursue modernization initiatives, the services have shortchanged unit manning, flying and training hours, depot maintenance, and spare parts.

This leaves our operators insufficiently trained and equipped and too often unavailable for use with poor materiel and condition.

This assumption of risk is not a foregone conclusion. The services can and should choose to shift their priorities to elevate manning, elevate training, and elevate safety and sustainment.

This may mean buying fewer new ships and planes. It also means taking seriously the cultural factors that the Navy, the GAO, and the Aviation Commission have all identified—specifically, a widespread complacency towards safety standards and a casual disregard for basic risk management practices.

And, finally, it should also mean taking meaningful steps to curb the combatant commanders' insatiable demand for the use of the force.

I know these are hard choices, but they are the right choices to avoid creating a force that is not only hollow, but vulnerable.

Now, with that, I yield to Ranking Member Lamborn for his opening comments.

Mr. Lamborn.

STATEMENT OF HON. DOUG LAMBORN, A REPRESENTATIVE FROM COLORADO, RANKING MEMBER, SUBCOMMITTEE ON READINESS

Mr. LAMBORN. Thank you, Chairman Garamendi.

Today we will hear testimony from the Vice Chiefs of the Navy, Army, and Air Force, as well as the Vice Commandant of the Marine Corps, about their efforts to learn from and prevent noncombat mishaps.

I want to thank all our witnesses for their time and service to our country. I also want to welcome my friend and colleague, Representative Vern Buchanan, of Florida, to this hearing.

We owe it to our service men and women to eliminate preventable accidents, period. Readiness is not just having enough spare parts on the shelves or enough aircraft to fly. Readiness is also ensuring our service members are proficient in their jobs and prepared to perform their duties that our Nation assigns them. This requires lots of time spent in tough, realistic training conducted in a controlled and safe environment.

Unfortunately, this is not always in ready supply, particularly when there is unpredictability in the defense budget process and an insufficient top line that forces leaders to choose between executing the mission today or preparing for the future fight. This is something we in Congress have the power to fix.

Over the past several years, our subcommittee has held several hearings and briefings focused on military aviation safety, the state of Surface Navy readiness, and ground vehicle mishaps.

Mr. Chairman, I am going to ask that you mute at your end.

The services and the GAO have also engaged with their own analysis, studies, and programs. In 2019, this subcommittee directed the GAO to conduct a review of the relationship between tactical vehicle mishaps and training vehicle safety and training range conditions.

While that review is not yet complete, we expect it will provide insights into the factors contributing to nearly 4,000 tactical vehicle mishaps over the past 10 years, leading to the loss of 120 service members. When the report is available, I expect the recommendations to be implemented.

We continue to see a trend in deadly aviation accidents. The fiscal year 2019 NDAA [National Defense Authorization Act] created

the National Commission on Military Aviation Safety to assess the causes contributing to military aviation mishaps.

Results of that effort indicated that insufficient training and experience, sustainment issues, funding, OPTEMPO [operations tempo], and workforce attrition were all contributing factors.

I expect to hear today what the services are doing to address this.

Since significant incidents and collisions in 2017, the Navy has conducted two primary reviews. Five years later, it is not clear that the reforms instituted are enough to protect our sailors and Marines. Quite simply, we need to do better for our service members.

Today, our witnesses will discuss these important efforts to address underlying issues driving accident trends and share the extent to which each military branch has taken steps to implement concrete recommendations to mitigate and prevent accidents.

Finally, I would like to mention trends.

While trends are important indicators of success and failure, we must not be complacent when trends are looking good. One Class A mishap or loss of life is one too many.

I am particularly interested in how the services are looking at Class B and C mishaps, as well as near misses, to examine root causes that may inform proactive solutions to more serious issues.

I want to thank the witnesses for your engagement today on this important topic. I look forward to hearing to how your service is taking actions to prevent today's accidents while we all work to ensure that service members have the time, tools, and training to be successful in the future.

Thank you, Mr. Chairman, and I yield back.

Mr. GARAMENDI. Mr. Lamborn, I will unmute, and you can mute. Good lesson for all of us.

I am going to introduce each of the participants separately. I am going to start with General Joseph Martin, Vice Chief of Staff of the Army.

I was running through your resumé, and you have covered almost every possible place and commanded or otherwise been in charge of something in every possible place where there could have been an accident. So, I suspect you are well versed on this entire set of issues.

General Martin, you have got 5 minutes, and your written testimony will be placed into the record. Without objection, so ordered.

General Martin, please.

STATEMENT OF GEN JOSEPH M. MARTIN, USA, VICE CHIEF OF STAFF, U.S. ARMY

General MARTIN. Chairman Garamendi, Ranking Member Lamborn, and distinguished members of the Subcommittee on Readiness, on behalf of the Acting Secretary of the Army, the Honorable John Whitley, and the Chief of Staff of the Army, General James McConville, thank you for this opportunity to discuss how the Army learns from training mishaps and how we are preventing future mishaps.

Also, thank you for your steadfast support to our soldiers, our civilians, and our family members. It is clear you have the best inter-

ests of our brave men and women at heart, and I appreciate your shared concern for their safety and well-being.

As you know, the Army is a people business. Our people are our number one priority. We know they are on loan from their families and the American people and are our greatest strength.

It is our responsibility to create a safe work environment where our soldiers are able to learn, to grow, and to achieve the results that they need to in those goals.

We are working hard to create an environment free of harmful behaviors like sexual harassment, sexual assault, racism, extremism, and suicide.

But it doesn't stop there. Placing our people first also includes creating an environment that is conducive to the conduct of safe and effective training at the individual and crew level where mishaps tend to occur.

We have made some progress over the past few years. For fiscal year 2020, Army aviation mishaps dropped to a 10-year low.

This was not at the expense of readiness or flying hours. Over the same period, our combat aviation brigades reported the highest overall readiness levels, and our Active Duty operational readiness rate remained above 80 percent.

For ground vehicle mishaps, over the last 5 years our average is the lowest since the Army began to keep records in 1972.

That doesn't mean that we are satisfied. This fiscal year, we have lost 11 soldiers to Class A aviation mishaps and 2 soldiers to Class A tactical vehicle mishaps.

That is 13 soldiers who won't be returning to their families. That is 12 families who will never see their father, their mother, their son, or their daughter again.

This is completely unacceptable, and we won't be satisfied until all of our soldiers return home safely from their training events or deployments.

Our Army is a learning organization. We conduct professional in-depth investigations into each and every mishap. The United States Army Combat Readiness Center ensures we understand not only the causes of mishaps, but also formally staffs and tracks recommendations.

Our process gives us a good understanding of the "why." Most of our mishaps result from the failure to follow the appropriate standard or the failure to respond appropriately to the conditions of the environment surrounding that particular soldier or weapon system.

Training and disciplined risk management is the key to our success. But our focus on training and repetition at the lowest level will increase the proficiency of our soldiers in our formation, and we intend to decrease the number of mishaps across the board.

I look forward to this discussion and your questions. Thank you for your time.

[The prepared statement of General Martin can be found in the Appendix on page 43.]

Mr. GARAMENDI. Thank you very much, General.

I will now turn to Admiral William Lescher.

Again, just running through your resumé, you have seen almost every possible place where somebody could have an accident. And so please speak to us.

And, again, 5 minutes, and your testimony will be in the formal record. Without objection, so ordered.

Admiral Lescher.

**STATEMENT OF ADM WILLIAM K. LESCHER, USN, VICE CHIEF
OF NAVAL OPERATIONS, U.S. NAVY**

Admiral LESCHER. Thank you, and good afternoon, Chairman Garamendi, Ranking Member Lamborn, and the distinguished members of the House Armed Services Subcommittee on Readiness.

On behalf of the sailors, civilians, and families of the United States Navy, I thank you for the opportunity to testify today on this important topic of service mishaps and the impact of these mishaps on our people and our readiness.

Our Nation depends on a Navy that maintains their advantage at sea. To provide that Navy, we must effectively learn from mishaps and must share that learning to accelerate insights and best practices, and we must institutionalize that learning to drive sustained change to behavior.

Today, we also see a strong opportunity to accelerate a number of emerging initiatives to mitigate risk before the mishaps occur. We are increasingly using data-driven prioritization of risk countermeasures and data-driven understanding of root cause to complement and eventually reduce reactive mishap-driven understanding of risk.

Examples of this approach span all of our major warfare communities and have been contributing to an overall Navy trend of reduced mishap rates.

As was mentioned earlier, the tragic 2017 collisions involving the USS *Fitzgerald* and the USS *John S. McCain* were a wakeup call and a strong impetus for today's progress.

The surface fleet aggressively engaged in broad reform, implemented safety teams focused on human factors and risk analysis, and developed comprehensive crew endurance management policies that are producing a cultural shift within the surface fleet.

A lower threshold as well for sharing concerns and insights, and increased reporting of lower level events and near misses, has also served to strengthen the surface community's safety culture and lower mishap rates.

The overall trend in our surface fleet is positive, but a significant area of sustained poor performance remains.

The *Bonhomme Richard* fire last July marked the 15th significant fire, shipboard fire, in the past 12 years, and it has demonstrated that previous leadership interventions of the type the fleet commanders aggressively instituted this past July and October have not resolved the shipboard fire root causes sufficiently to drive enduring change in the frequency of these mishaps.

Early this year, I directed a separate, broader deep dive review to eliminate systemic issues with regard to standards, culture, and environment driving the daily discipline in shipboard stowage, cleanliness, and readiness, and to recommend necessary actions to establish enduring change in fire safety culture and practices.

In 2019, Naval Aviation Class A to B mishaps declined for the first time in a decade, and in 2020 the declining A to B mishap trend continued with zero Class A fatalities achieved for the first

time in a century. However, we also saw the Class A mishap number increase slightly and Class C Aviation Ground Mishaps increase.

To accelerate learning here, Naval Aviation has increased the use of flight line spot checks, employed predictive analytics, which I would love to talk more about in the hearing, and leveraged lessons from the surface and the submarine communities.

We have also pursued a more effective approach to training, requiring aviators to earn the right to fly, to demonstrate a proficiency in both fundamentals and tactics in a range of simulators. These actions have put us in a solid vector to continue reducing aviation mishaps and improve safety outcomes.

Our submarine force had zero groundings or collisions in 2020. This is the result of leaders driving outcomes with a strong analytic tool, OBIEE, and it highlights units at increased risk of adverse safety or operational outcomes; also used the increased use of near-miss reporting and analytics, and strong discipline in implementing lessons learned from prior near misses.

The submarine fleet has been contributing well and overall to Navy improved safety and performance by broadly sharing a number of best practices with our surface and aviation enterprise as well as the Naval Safety Center.

Of course, all of these warfare communities are focuses on ensuring that we are setting our sailors up to succeed in executing their missions with the right training, the right tools, and policies underpinning a strong, well-functioning safety culture.

I look forward, Chairman, to exploring these topics further with the committee today, and I thank the committee for your leadership and your partnership in sustaining focus on the critical issue of safety performance.

[The prepared statement of Admiral Lescher can be found in the Appendix on page 54.]

Mr. GARAMENDI. Admiral Lescher, thank you very much for your testimony. Again, we will look at your written testimony. And yes, we will get back to predictive analytics somewhere during the course of this hearing.

Our next presenter is General David Allvin, United States Air Force.

General.

STATEMENT OF GEN DAVID W. ALLVIN, USAF, VICE CHIEF OF STAFF, U.S. AIR FORCE

General ALLVIN. Chairman Garamendi, Ranking Member Lamborn, and distinguished members of the subcommittee, on behalf of the Acting Secretary of the Air Force, John Roth, and the Chief of Staff of the United States Air Force, General C.Q. Brown, Jr., thank you for the opportunity to provide an update on this important issue and for your continued support and advocacy of our most important resource, our airmen.

Safely executing the high-end training required to preserve the readiness during this era of renewed peer competition is incredibly important. Your Air Force remains committed to building a culture of safety that preserves the considerable investment that the Amer-

ican taxpayer has made in our service, and more importantly, safeguards the sons and daughters placed in our care.

Our focus remains on preventing mishaps before they occur. We have strong programs that proactively identify risk and are consistently looking for ways to make our operations more effective and safe.

And when the mishaps do occur, we are committed to learning from them through data-driven analytics and a continued focus on a readiness culture so that we can prevent similar occurrences in the future.

While our overall Class A, B, and C mishap rates have all declined since we formally briefed this subcommittee on the subject in 2018, we continue to have unacceptably high rates of training mishaps, including seven that cost the lives of airmen last year alone.

Like you said, Mr. Chairman, one avoidable mishap remains too many. We are all committed to doing all the things we can to bring down those risks.

Our internal analysis, recently bolstered by the December 2020 release of the National Commission on Military Aviation Safety report, highlights several key areas that can help contribute to safe and effective training in an operational environment for our airmen.

These include sustaining investments in our flying hour program, reinforcing the aviation supply and maintenance system, a culture of transparent communication and accountability, returning bandwidth to our line units for reinvesting in training, expanding access to high-quality simulators and training devices, and retaining the seasoned operators to build the next generation of airmen.

We look forward to partnering with the Office of the Secretary of Defense, our joint partners, and this subcommittee to fully capitalize on the commission's insights to deliver the safe and effective training environment that our airmen and our Nation deserve.

Thank you again for your interest in safety, your advocacy for the same, and for your continued support to fund these activities to keep our airmen safe. I look forward to the questions. Thank you.

[The prepared statement of General Allvin can be found in the Appendix on page 65.]

Mr. GARAMENDI. Thank you, General Allvin.

We will now move to our final presenter, General Thomas of the U.S. Marine Corps.

General Thomas.

**STATEMENT OF GEN GARY L. THOMAS, USMC, ASSISTANT
COMMANDANT OF THE MARINE CORPS, HEADQUARTERS,
U.S. MARINE CORPS**

General THOMAS. Chairman Garamendi, Ranking Member Lamborn, and distinguished members of this subcommittee, thank you for the opportunity to testify on the issue of learning from and preventing future training mishaps.

As the Commandant stated in his planning guidance, the Marine Corps is a naval expeditionary force-in-readiness, and that readiness is a strategic warfighting advantage for the Nation.

In order to maintain that strategic advantage, we must be able to train to and operate in austere environments at sea, in the air, and ashore without unnecessary sacrifices of personnel and equipment.

Over the past several years, the Marine Corps has diligently worked to reduce training mishaps. We have taken an institutional approach to improving safety performance, including a new standards-focused safety management system, better reporting and information-sharing tools, and service-wide changes based on investigation findings.

While we have made significant improvements, there is still much work to do. Ensuring institutional change occurs and lasts is my personal priority.

Leadership remains the bedrock of Marine Corps initiatives to improve safety culture, reduce mishaps, and increase readiness.

The institutional changes I just mentioned, among others, are empowering our leaders to encourage greater hazard and mishap reporting, incorporate lessons learned, and make better decisions.

Active leadership, enabled by resources, will help us to continue to reduce mishaps and generate readiness.

The Marine Corps remains committed to ensuring the safety of our Marines, sailors, and civilians as we train to be the most ready when the Nation is least ready.

As of today, we have had zero fatalities in aviation and ground training mishaps this fiscal year. We are working very hard to maintain this as our standard.

We appreciate your support and oversight as we continue to improve our safety performance and advance the lethality of the Nation's naval expeditionary force-in-readiness.

I look forward to answering your questions.

[The prepared statement of General Thomas can be found in the Appendix on page 79.]

Mr. GARAMENDI. General Thomas, thank you very much.

We will now go to the question and response part. Before I ask my opening questions, I am going to read the gavel order so that everyone has an opportunity to know who they will follow.

As is the tradition, I will open, Mr. Lamborn, then Courtney, followed by Wilson, followed by Speier, Moore, Strickland, Scott, Slotkin, Kahele, and Buchanan. We will go in that order.

So let me go ahead and begin here.

The National Commission on Military Aviation Safety concluded the high rate of aviation mishaps can be attributed to numerous factors, including inadequate pilot training, maintainer training and experience, insufficient maintenance, unpredictable funding—I think that is our problem, and hopefully we will address it—and then a high operational tempo that causes fatigue and burnout.

And so to all of the witnesses, I will go at this in the same order. We will start with the U.S. Army. We are talking aviation here specifically.

General Martin.

General MARTIN. Chairman, thank you.

So we have been thoroughly briefed, and I have read cover to cover the National Commission for Military Aviation Safety, its findings and its recommendations, and we are tracking that 17 out

of 25 of them are applicable to the Army. We have already implemented 4 out of those 17, specifically maintenance proficiency badges, PERSTEMPO [personnel tempo] tracking, tuition assistance for our airframe and power plant service members in their credentialing, and then restoring the home station flying program by supplementing it this year with OMA [Operation and Maintenance, Army] dollars to bring up the proficiency level training of our aviators.

There are several other efforts that we are doing to get after some of the recommendations within there, but of significant import to the Army is the insufficient flying hours, and we have addressed that with the flying hour program supplement.

And then decreasing proficiency. I have signed out a memo—actually three memos—to the force to direct them to focus on the proficiency levels and also isolate the mechanics, so that the mechanics focus on maintaining the aircraft and they are not distracted by other activities.

And then last one I will talk that is of importance is the relentless OPTEMPO. And we have attacked that by telling our commanders and assisting them with this to decrease the number of CTC [Combat Training Center] rotations that our aviation brigades are participating in.

They are still participating in every rotation, but it is not a combat aviation brigade per rotation. That has had a significant impact on decreasing the OPTEMPO in our formations.

And so there are a couple examples of some of the things we are doing to get after the findings.

Mr. GARAMENDI. Yes. I need to unmute.

Admiral Lescher. You are next, Admiral.

Admiral LESCHER. Thank you, Chairman.

Yeah. Very quickly, across that appropriate list of things for us to be focused on.

Pilot training. I touched on it briefly in the opening comment. What we have seen since the National Commission on Military Aviation Safety, which had many findings that were very much on the mark, one specific context element that changed from when they visited Lemoore, when they visited and talked to Navy is the journey we have had in driving mission-capable aircraft up.

So they were at a point where we were at 55 percent mission capable. Today, we are sustaining 80 percent with an important journey that is beyond the scope of this conversation.

That, in terms of pilot training, both the use of more available aircraft and mission-capable aircraft is helping, and also the sims [simulators] I talked about, where we have, I think, one of the areas where the commission said, hey, are we using too many sims?

We are using sims in a way I think that is powerful, and we are seeing in terms of outcomes things change. The standard scores of pilots through training are increasing with the use of the sims, the time to training is decreasing, and the same number of flights are being flown, in terms of the actual events. So the sims are very complementary, and they are creating a better output.

In pilot training, for sure one thing we are keeping a close eye on is recovering from the time when the T-45 in our advanced

strike training, engine suppressed throughput at the same time as we were also recovering from physiological episodes. And so we worked hard to get back to the capacity of the training pipelines, pilot training.

Continuing. Maintenance training. Happy to talk at length. I think we have a strong program here, and we are evolving it from our current A School sequenced construct to Ready, Relevant Learning and distributed learning.

Insufficient maintenance is an interesting observation. I think, as we talked about briefly yesterday, Chairman, the insufficient maintenance is not the issue. We have learned through two deep dives in fiscal year 2018 [inaudible] that is actually a maintenance program reset to update the maintenance program, the current configuration, the current components, that is indicated that we are doing maintenance at a period [inaudible] required, in some cases maintenance not required from an engineering-driven perspective and having our SYSCOM [systems commands] doing the analysis. So I think that is an important element for us to look at.

Unpredictable funding. I appreciate working with the committee to help us here. I would highlight two instances. OPN-8 [Other Procurement, Navy, Budget Activity 8] spares have an impact on readiness. We, unfortunately, in the Navy trained the committees to mark that account with poor execution 2 to 3 years ago, but in both OPN-8 spares and the flying hour program we are executing those programs strongly, and we would like to work in partnership with the Readiness Committee to bring those across the line in the defense appropriations bill.

Finally, OPTEMPO. The fleet is stressed for sure. We are looking to strongly control OPTEMPO. We are looking to control scheduled churn within that high OPTEMPO.

The response there is to have strong programs in place to assess and assist our people and strong leadership as we work through the world getting the vote and the strong OPTEMPO.

Back to you, Chairman.

Mr. GARAMENDI. General Allvin.

General ALLVIN. Thank you, Mr. Chairman.

And I will repeat what my colleague said. These are four very meaty issues that I think are definitely worth a deep dive, and we have given it one.

I would say that coincidentally, the same year that—about when this commission started its work, we had our operational safety review, and we found many of the same issues. So we have been able to move out with some things. So I will go down the list as well.

With respect to pilot training, as you know, Mr. Chairman, we have a bit of a throughput problem, and we have a long-term pipeline problem with the pilots.

And so we have undertaken a new way, looking at the next pilot training approach, to make sure we have more immersive training, to make sure it is something that is more amenable to individualized training for each of the UPT students, undergraduate pilot training students.

But I will repeat what Admiral Lescher said about aircraft availability. You know, with our T-6s, we tackled, along with the Navy,

some of these physiological event issues, and that impacted the availability of the aircraft as well as the safety while in flight.

And so through some great work through our physiological event action team and working with the Navy as well, we have seen a fivefold decrease in those physiological events, which not only is more safe operation in and of itself, but it actually increases our confidence in that particular training platform.

But a renaissance in the way that we train pilots to make sure that it is consistent with 21st century education and training techniques is key to our way forward there.

With respect to maintainers, we saw the very same thing, that the idea is really about the experience of the maintainers. And part of this is they are so interlinked with some of the other challenges we have.

Part of our transition into the modernization was to leverage some of our maintainers and have them be maintainers in the new fleet. But as we continue to struggle with being able to divest the legacy fleet, we find that we are stretching our maintainers thin.

So we since 2017 have added 4,000 maintainers to the fleet. So that is a good start. But obviously, if you add 4,000 new maintainers, then the relative experience of your entire maintenance fleet drops down. So we need to help season those maintainers.

And through the things like credentialing and other things, we are looking at incentivization to keep those maintainers in their career field, but also keep them doing the maintaining, which is something that the commission also pointed out, have pilots fly, have maintainers maintain.

So we also cut back in 1,800 additional administrative assistants to do the admin work that some of our pilots and maintainers were having to do. So we slid some of that back because we found, as a product of what we had done almost a decade ago of trying to cut as much manpower as we could to save money, that we had people doing more than just their core competency.

So we reversed that. We also did a scrub and reduced 46 additional duties that just weren't adding value and consolidated another 15.

But the idea of keeping maintainers on the track and getting them more experience, we are moving hard on that one as well. The funding, Mr. Chairman, would be greatly appreciated.

And the high tempo, we really are managing risk. And we look at the demands that come to us from the joint force, and as they come to our service, we manage risk and look at the readiness of the force and the availability to do that, and we do our very best to meet the demands as they are given to us.

But we have a keen eye on the relative risk over time that is becoming an increasing burden. Buying down today's risk at the expense of tomorrow's, that is one thing our Chief and Secretary are looking more and more at because we don't want to be the force that 20 years from now they look back and said, you were the guys who left us unable to compete against China, for example.

Mr. GARAMENDI. General, thank you very much.

We are now looking to the final person to speak to this issue.

General Thomas, if you will bring us up to date on the Marine Corps with regard to this oversight by the commission.

General THOMAS. Thank you, Chairman.

The Marine Corps agrees with the commission's findings, and we are taking a deliberate look at all of the recommendations. But we particularly agree with the observation on the power of consistent funding, and we thank this committee for their support in that regard.

Many of our ongoing initiatives are aligned with the commission's recommendations. For example, reducing OPTEMPO of our operational forces is a key aspect of that, and we have been able to reduce the demand signal on many of our units over the past few years.

Improved qualification tracking, of course, improving materiel readiness, and ensuring that our air crew get adequate flight hours, in all of these areas we have seen improvement.

As my teammates mentioned, with regard to pilot training, we also have in some ways a throughput challenge. We are working closely with our Navy teammates to do simple things in terms of increasing the number of instructors and standing up a second fleet replacement squadron for F-35 as we begin to scale.

Those initiatives, along with some of the 21st century learning approaches that Admiral Lescher highlighted, are going to, we believe, greatly improve our posture.

In terms of maintenance personnel, it is primarily a function for us of maintaining our experience base. It is largely a retention issue. And we are getting after that with reenlistment bonuses of \$20,000 for very experienced maintainers. And we have noticed that over the past few years 2,100 Marines have taken us up on that incentive.

We appreciate the opportunity to use the report to also help us improve our safety record as we go forward.

Mr. GARAMENDI. General, thank you very much.

A lot more to be discussed on each of those issues, and I suspect my colleagues will tease out other details along the way.

Mr. Lamborn, it is your turn.

Mr. LAMBORN. Thank you, Mr. Chairman.

I know that the services are focused on identifying contributing factors to Class A accidents that involve high dollar amounts and permanent disability or death. But the near misses, the Class C mishaps, and the present but not contributing factors in Class A mishaps can reveal the canaries in the coal mine that could cause the next accident.

And along the same lines, in August 2018 GAO found gaps in DOD's [Department of Defense's] approach for collecting, reporting, and analyzing the data from mishaps in general.

So a two-part question for each of you. What are you doing to act on the problems that lower level mishap incidents reveal? And what steps are you taking to improve the reporting of data on all of these mishaps?

In no particular order. Let's go in the same order that you testified earlier.

General MARTIN. Congressman, there are two things I would like to talk about very quickly.

So born at our Combat Training Centers, where we have got probably the highest fidelity and clearly the most dangerous condi-

tions where we train in a live training environment, born out of the CTCs is this what we call the mishap pyramid.

It is based on a German—Bird and Germain theory that if you have so many near misses, they will equate eventually over time to so many Class D accidents, so many Class C accidents, so many Class B accidents, and in the end, you are going to have a catastrophic outcome and a Class A mishap.

And so, literally, at our Combat Training Centers, they count the number of accidents. The observers, coaches, and trainers, they tell on—they report on all the accidents. The unit is required to report. So there are summary reports, and literally you watch the volume of accidents come in, and it allows the leadership to see in each of the after-action reviews, hey, we have had so many of these types of accidents, we are on our way to a more severe outcome.

That has proved out pretty beneficial, and it has changed the culture in our home station training environments as a result of that. And so that Bird and Germain theory that was born out at NTC [National Training Center] is applied to the rest of the Army.

And that is how we look at lower mishaps, because, you will remember, especially when you are talking aviation, the difference between a near miss and a Class A accident in some cases is fractions of a second. And so we have got to be mindful of near misses.

And then the second point I would like to bring up is in October of last year, we launched the Army Safety Management Information System [ASMIS] where we replaced a clunky, Industrial Age process of accident reporting where you had to fill out the same form no matter if it was a cut on a finger or an aircraft hit the ground. It was the same accident form. It was very laborious, and it was somewhat daunting.

Well, with this new system we can see a lot more accidents. In fact, we have 97 percent better compliance rate and timeliness rate of turning in accident reports because if it is a Class D or a near miss, it is something that can be reported very quickly.

And it also includes a non-attributional, anonymous feature where you can report an accident and no one will know you reported an accident.

And so we think that ASMIS, the Army Safety Management Information System, is going to help us better see that data on those lower severe outcome accidents to inform changes to our processes and our procedures in the United States Army.

Thank you.

Mr. LAMBORN. Okay. I would like to hear from the Navy next. Navy, are you there? Admiral.

Admiral LESCHER. I am struggling with the mute/unmute. I think I am up now.

So I will build on what General Martin said in a couple ways.

For sure, the side picture is correct that Class C's and near misses are a fundamental driver of us learning, understanding, and taking action on them. We have been looking at Class C's, I think, in a number of interesting ways.

One element I will start with that is not a success yet is convergence training. If you look to the airlines in aviation and look at fundamental training of elements that are often the root cause of aircraft move accidents and the type of accidents we see that gen-

erate Class C mishaps. And what we have seen after 18 months or so of that is that it is not moving the needle.

So, again, we are very focused on understanding where we are just seeing activity and where we are seeing outcomes that are fundamentally addressing the root causes.

And so what we have learned with convergence training, which was fundamentally pre-, post-move alignment on a quick run-through of operational risk management, it wasn't moving the needle.

Two things going forward that I think are high potential. We have 2 years now of experience using an aviation experience metric that correlates with readiness, that lets us really understand and allocate our people in a way that maximizes readiness. We call this the aviation and maintenance experience metric that looks at type/model/series experience, that looks at qualifications, such as quality assurance qualifications. And we can use it very effectively.

We are doing an offshoot of that to look at aviation boatswain's mates, which are the people on our flight decks, on our big deck amphibians, on our aircraft carriers who are doing so much of the activity that is at risk of being a Class C when you bump an aircraft in a move, et cetera.

And we see that there is initially from the data already that we could be much more informed about understanding with this analytic approach the experience of an aviation boatswain's mate in terms of familiar with that type of ship, in terms of number of deployments, in terms of other fundamental quals [qualifications], and use that to allocate that and make sure, for example, on specific ships or specific moves, that we have a properly experienced supervisor driving the evolution. So I would highlight that as one element.

Another element that is going forward, we have some experience working with industry on specific [inaudible] risk and problem-solving process which is basically a deep dive effort and a very disciplined way to find root causes. And we had an opportunity to do three of these pilots, and one of them is in fact [inaudible].

So I will pause there in the interest of time, but the same type picture.

I guess—I am sorry—the second question was on data, do we feel we are getting the data.

I think you are tracking, sir, that we are using and have joined now the same risk management information database and approach as the Air Force and the Marines. And so standardized data sets.

And while it is a moving target, we are 98 percent complete in terms of the current target in terms of data completeness. So our sense is that we are on a strong vector to make sure we have standardized, complete data to help drive these insights.

Over.

Mr. LAMBORN. And briefly, the Marines and Air Force.

General ALLVIN. I am sorry. Go ahead, Gary.

General THOMAS. Thank you, General Allvin.

Just, Congressman, in terms of how we are acting on the problems that these lower level mishaps reveal, we are looking at it

through two lenses. First, hazard reporting, followed by information sharing.

And this is something that General Martin spoke to, but I would also like to emphasize is that we have introduced new tools that not only makes the reporting of hazards that Marines see much easier, we have also made it where they are anonymous.

And, again, it just encourages Marines down at the deck plate to identify those things that they may see every single day. And then we are able to aggregate those and look at it across the entire institution.

And then in terms of information sharing in the Department of the Navy, of course, we have this Streamlined Incident Reporting System, as well as a mishap lesson learned website. Again, that makes the lessons learned that have been cataloged over a number of years readily available to commanders, O-5 commanders, on a daily basis.

In terms of the data collection, again, I would like to emphasize something that Admiral Lescher said, that we are completely aligned with the Navy in fielding this Streamlined Incident Reporting System. It is a Department of the Navy initiative that is based on a very successful and mature Air Force system.

He mentioned that we have standardized data. I would just add to that that we actually use the same data collection fields. And as he said, I think we are 98 percent common in terms of our approach. And we look forward to continue supporting ongoing standardization efforts to improve data collection across all the services.

Mr. LAMBORN. Thank you.

And very briefly for the sake of time, Air Force.

General ALLVIN. Yes, sir. I will be brief because most of the things I would say have already been said.

We also have a very robust—we investigate every Class C mishap that happens at each wing. Those get elevated all the way up to the four-star level, and the results of those are reviewed on a semiannual basis. And every one of the findings of every one of Class C, Class B, Class A mishaps are tracked to closure at the four-star level, and that allows us to see not only individual incidents but across incidents for trends.

With respect to the data, we have all of those same things. The database is getting better. The fields are consistent so we can start reading each other's data, learning across service as well. And we also have the identity-protected inputs that allow our airmen to be able to identify hazards and identify culture and climate issues with respect to safety that they may not otherwise be able to do.

Thank you.

Mr. LAMBORN. Okay. Thank you.

Mr. Chairman, back to you.

Mr. GARAMENDI. A good set of questions, great answers.

I am going to give the gavel order once again. Courtney, Wilson, Speier, Moore, the next four up.

Mr. Courtney.

Mr. COURTNEY. Great.

Well, thank you, Mr. Chairman, thank you, Ranking Member Lamborn, for holding this hearing, and to the witnesses for their testimony.

Admiral Lescher, on page 3 and 4 of your testimony you talked about the sort of post *Fitzgerald* and *McCain* reforms. Again, there was the comprehensive review which we went through on the subcommittee back in 2017 and 2018 with the 111 recommendations. Many of those were actually codified in the NDAA [National Defense Authorization Act] that year.

And I was noticing where you kind of updated the fact that the readiness certification of the crews has now reached a 100 percent certification process, which is actually a pretty shocking improvement.

When GAO did the report back in 2017 the certifications were really actually kind of frightening in terms of how low many of the sailors and the crew were.

So I want to just see if you could sort of explain, was it giving the type commanders more power, because that obviously was identified as a problem in terms of the tug of war between the type commands and the operational commands?

I mean, is their ability, maybe, to sort of, pull the safety brake, as Admiral Richardson said back in those hearings that we held, forcing the issue, where we make sure that everyone is certified before a ship goes underway? Is that what is happening?

Admiral LESCHER. Yes, sir. It is good to see you again.

And that is exactly what is happening. I mean, your instinct is exactly on the mark. So Roy Kitchener at SURFOR [Naval Surface Force, U.S. Pacific Fleet] and Brendan McLane now at SURFLANT [Naval Surface Force, Atlantic] have—we put the firebreaks in, which was a fundamental diagnosis, that we had lost the firebreaks between the maintenance, the training, and then the deploy phase.

And so in terms of a culture change, which I hinted at a bit, there is a fundamental culture change of ending this idea of waivers. There have been no waivers. They require four-star level now. And there is multiple examples of where from a man, train, or equip perspective the type com [commander] has said to our fleet commanders, “Hey, I have got to change this engine, I have got to redo this exercise, I have got to have the time to do this right,” and they are supported.

So your diagnosis there is correct, sir.

Mr. COURTNEY. Well, it is really encouraging to see that, again, people got their heads together and identified what the problem was and solved it without—again, it really didn’t require necessarily infusions of big amounts of money or resources. It was just really trying to change or put in safeguards. Congratulations to the Navy for making that happen.

General Thomas, your report and your testimony at the end talked about the AAV [assault amphibious vehicle] accident that took place in San Clemente, the tragic accident.

So it is my understanding that a report is imminent in terms of describing, I guess, what the Navy—the Marine Corps investigation produced.

And one question in addition to just that is, was the use of those AAVs paused in the wake of the accident? And has there been any modifications made to those platforms during that pause?

General THOMAS. Thank you, Congressman.

Just in terms of the investigation, the investigation is complete. We are informing the families of the investigation findings this week. Making sure the families are informed and answering their questions is a priority for us. And we look forward to releasing the results of that investigation near simultaneously to the committee once those family notifications are complete.

In terms of the actual waterborne operations, they were suspended to complete a review of our equipment, our procedures, and training. With a couple of exceptions, the first three-star in the chain of command has the ability to waiver that in reasons of operational assessing.

For example, we are conducting limited water operations to complete entry-level training requirements, and we are committed to ensuring a safe return to water ops as soon as we can.

And to your question in terms of the vehicles, when we suspended water operations we did a thorough inspection of all vehicles, whether related to any concerns about this particular mishap or not, and reported that and made some just maintenance effort to ensure that all of those vehicles were within standards.

Mr. COURTNEY. Great. Thank you, General. I appreciate it. And I am sure once the report is out, we will continue this dialogue.

I yield back, Mr. Chairman.

Mr. GARAMENDI. Thank you, Mr. Courtney.

There is a great deal of interest among the committee members on that particular issue. The timing didn't work out well. We will probably do a briefing. And any of the members of the committee and any others that want to involve themselves either next week or the following week, probably the following week. We will see what happens here.

And, General Thomas, we will invite you back for about an hour to discuss that particular incident.

Very good.

Okay. We are now going to turn to Mr. Wilson.

Mr. WILSON. Thank you, Mr. Chairman and Ranking Member Lamborn. We appreciate the dedicated panel participating today, extraordinary individuals on behalf of our country. We appreciate it.

Admiral Lescher, to further the excellent review by Congressman Courtney, I was grateful to visit the USS *Fitzgerald* in Japan several years ago and saw where our sailors were tragically killed, and appreciate your efforts to make sure an accident never occurs again.

The Navy concluded that fatigue was a contributing factor to both the *McCain* and *Fitzgerald* collisions. The substantial body of research indicates that the fatigue causes impaired judgment, decreased concentration and reaction times, and contributes to poor mental and physical health.

This issue is not isolated to the Navy, but how has your service made progress on changing the culture of sleep deprivation on ships and submarines? What lessons learned can you pass along to your teammates?

Admiral LESCHER. Thank you, sir, for the question, and I appreciate you getting on site as well.

There has been a comprehensive culture change, most starkly in the surface community. So my background, I grew up as a helo [helicopter] pilot that deployed on our surface ships, our small surface ships as an HSL [Helicopter Anti-Submarine Squadron, Light] pilot. So, I consider myself a student of the surface warfare culture.

And there was a stark difference. I, as an aviator, would get up and I would have my crew rest, and I would ensure I had a circadian rhythm before I would fly. And my teammates across the passageway did not have that same discipline, and there was an element at times of the SWO [Surface Warfare Officer] culture where it was a point of pride to operate sleep-deprived.

That has fundamentally changed, and it fundamentally changed with Roy Kitchener, our surface three-star SWO boss, implementing an instruction this year, the Comprehensive Crew Endurance Management Policy.

And the community had been thinking about this idea of setting their watches to preserve circadian rhythm, to preserve crew rest, to preserve sleep, but it had been dabbled in. Roy made it a requirement, a policy.

And when you go aboard our ships now and you talk to the sailors and ask them to talk about how they stand their watches, you will see that that has been made a requirement and it is a part of the fundamental culture.

The other element that is interesting is there is quite a bit of ongoing work on all the elements you talked about, fatigue, sleep deprivation, with Naval Postgraduate School [NPS]. So the surface community has worked closely with them.

One other element I would highlight of the surface community is there are experiments going on right now, a pilot going on right now as we speak aboard *Essex* with 300 sailors using a wearable device. So they are reporting. You know, you have seen these commercially [inaudible]. Athletes use them. And the sailors are having these assessments of how they slept, et cetera, available to be brought into a watch bill software to optimize that as well.

And it is not just the surface force. Again, in the interest of brevity, I will go fairly quickly.

The submarine force, I think you know a couple of years ago they shifted from 6- to 8-hour watches. They are doing a lot of ongoing work as well with the medical community and NPS on lighting, on meal schedules, on training schedules, and in aviation.

Notwithstanding that we have had strong fatigue management in the air crew, what is new starting in 2018 is our 3710 instruction, our general NATOPS [Naval Air Training and Operating Procedures Standardization] instruction mandates that we apply that to the maintenance professionals and the admin folks as well.

So now it is not just air crew. It is wanting the full team, maintenance as well as air crew, being focused on being properly rested and properly prepared to do the mission.

Over.

Mr. WILSON. Well, as a Fitbit fan myself, I know how you can maintain a person's sleep habits. And so that is very, very helpful.

And, General Martin, I am really grateful to represent Fort Jackson. And in the NDAA there was included an amendment that requires DOD to examine emergency response capabilities and serv-

ices in the military installations, to explore the benefits of requiring medevac helicopters and a fully stocked military ambulance to be more readily on hand to respond to training accidents.

What progress has the Army made to adopting these requirements?

General MARTIN. Congressman, thank you. It is good to see you again.

We are aware of the amendment. I have actually read the amendment itself. And OSD has not tasked that out yet. We anticipate it will be forthcoming. And we look forward to supporting the study that is in the amendment to take a look at it.

That being said, as a former senior commander of two installations in the United States Army, I can't tell you how important it is to have appropriately equipped and rehearsed medical capability that is responsive at each and every one of your installations. I couldn't agree more.

Mr. WILSON. Thank you very much. As an Army dad and also a Navy dad, I am really proud of what you are doing.

I yield back.

Mr. GARAMENDI. Thank you, Mr. Wilson.

Ms. Speier, you are up next.

Ms. SPEIER. Mr. Chairman, I want to forgo my turn for about 10 minutes so I can get to my destination and ask my question when I am not in a car.

Mr. GARAMENDI. We will be watching you, and when we see you settle down and stop bouncing around, we will call on you. Thank you.

We will skip then to—I suppose we need to go to a Democrat. So that would be, Ms. Strickland, you are up. And then we are going to go to Mr. Moore.

Ms. Strickland, we jumped ahead and didn't give you much warning.

Mr. Moore then, you are up, and then we will get back on track.

Mr. MOORE. Excellent. Thank you, Chairman.

Generals and Admiral, thank you for being here.

My district hosts the Command Mission and Control Center for the Utah Test and Training Range [TTR]. And this is a top priority for them. They have a great track record. They make this very much a priority. So thank you for the work you are doing to get here.

And I would actually just like to call out the commission. As I have gone over the summary here, this is very poignant and provides really good information, and I encourage my colleagues to really dive into this.

But insufficient experience, high OPSTEMPO, and workforce attrition, those are real issues that can directly go towards training mishaps. And the solutions that are provided are flying hours and retention bonuses. I welcome comments on that.

Let me ask my first question, though, to General Allvin.

Also, the commission referenced sustainment challenges and unpredictable funding as contributing factors to training mishaps.

Could modernization and optimization efforts, specifically at test and training ranges, are these going to help mitigate some of these challenges?

General ALLVIN. Congressman, thank you for the question.

I definitely think that there is a link to that. The quality of the ranges and the ability to get the type of training which, moving forward, trying to replicate what is an advanced threat and not having the right sensors, the right support equipment, all of that, will force us to try and train a different way.

And any time we train a little bit differently than how we fight, it has two impacts. One of those is we have less confidence in our ability to actually prosecute the targets we need to or penetrate the airspace we need to, et cetera.

But the other part is it actually, once you start detracting from that, you start going off script, and there are safety impacts to that.

So I do believe that there is a linkage there, and I believe that as we move into a more modern range structure and support, our big challenge is going to be in the transition.

I mean, if we could fast-forward and look into the future and have everything modernized and all of the flight support equipment, all of the platforms at the same level of technology advancement, we will be in good shape.

But trying to bring legacy systems in the same environment as the new systems is going to be increasingly challenging. And I think there is not only a readiness risk, but there are training efficiency risks. And when you have training efficiency risks, safety often comes along with that.

So I would agree with that statement.

Mr. MOORE. Thank you.

And as I have interacted with commanders at our Air Force base here in Utah, they know their airmen best. I feel like there is a great relationship that they have.

And as we talk about the fact that retention bonuses haven't necessarily worked, even though it is part of the solution, they haven't necessarily worked in keeping them from going to commercial aviation, do you feel that squadron commanders have the adequate authority to be honest brokers when negotiating aviation bonus contracts?

General ALLVIN. I think squadron commanders, I think they do have the authorities. What we need to do is ensure that the analysis that we do gets communicated and transferred to them so they can best advise.

Because you make the exact point, Congressman. They are the ones who interface with the aviators, and they are the ones who understand what the value proposition is for those aviators, whether an extra X thousand dollars is really what is going to seal the deal for a longer commitment or if there are other levers that the Air Force should be pulling.

So we have air crew summits very frequently that discuss this. What do we think the sweet spot is? And, of course, that varies with the economy, as we know.

But the economy is just one variable. We have to do the best job of understanding what that pull is, but also understanding how to better communicate the value proposition of what the Air Force offers and working on all those other issues that are quality of life,

quality of force, that will keep them there beyond just the dollar values.

Because if we try to go one for one with the airline, as the economy picks back up again, it will be a losing proposition. We have seen that, a couple iterations over the last decade.

Mr. MOORE. You just answered my next question, because I was going to ask to what extent is OPSTEMPO a part of that, but you have addressed that with quality of life.

OPSTEMPO, the need for the mission, that got them in that seat in the first place, and encouraging them to do that.

I will leverage the last few seconds with continue to talk about workforce attrition. They leave critical vacancies in the organic industrial base.

Do you believe that DOD has adequate hiring authorities to address workforce attrition and the growing competition?

General ALLVIN. In the very brief time I have, I would say that those are, indeed, challenges. We see not only diminishing manufacturing sources for equipment and supplies, but also to get the right labor market in to be able to do the rapid innovation that we need to keep up. That is going to be critical. I would love to talk more on that as well.

Mr. MOORE. Yeah. We have been focused on airmen, but, obviously, there are so many more job opportunities that we can maintain that talent.

I yield back. Thank you, Chairman.

Mr. GARAMENDI. Thank you, Mr. Moore.

And thank all of our committee for being very attentive to the time as well as the witnesses. Appreciate that.

I see Ms. Speier is still in her car, so we will skip back to Ms. Strickland.

If you are with us, it is your turn.

Ms. STRICKLAND. Thank you very much, Mr. Chair.

Service members put their lives on the line to serve our country, and, obviously, we have to do everything we can to ensure their safety.

I am concerned, however, that Congress has found itself having to create commissions, and some of these services have had to launch comprehensive reviews after the series of incidents.

And these actions make it seem as though the safety offices may not be properly resourced or connected to these accidents.

And so I have a few questions.

Do safety offices have the capacity, the ability, and the authority to identify and investigate the root causes of training accidents?

And I would like to direct that toward General Martin and also General Allvin.

General MARTIN. Congresswoman, thank you. Appreciate the question.

First and foremost, what I would really like to do is I would like to personally invite you and any other members of the committee for a visit down to the Combat Readiness Center at Fort Rucker, Alabama, so you can see the exquisite capability we have there that we use not only to identify the root cause, the causation of each accident, but also to manage the data that comes in from the various accidents that are reported across the board.

As it pertains to the capabilities within each formation to ensure that we mitigate risk, in the United States Army risk mitigation is a commander's program.

It is enabled by safety professionals. And those safety professionals are placed throughout our ranks and our formation, and we use them to help us as subject matter experts and also conduits to the rest of the enterprise, since they talk to each other about different things, to help commanders promulgate safety programs.

But, that being said, we have recently done a study, based on some information from a GAO audit, to take a look at our manpower.

And we are looking at increasing the number of safety professionals we have at certain locations in our formations to get after some more of that additional subject matter expertise that we need to make sure we enable that commander's program to happen.

Thank you.

Ms. STRICKLAND. Thank you.

General ALLVIN. Congresswoman, thank you for the question. I think it is a very important question too.

I believe that one of the most important parts of our safety program is sort of the independence that the safety apparatus has, *per se*.

I think the idea that at the squadron level, if there are levels of mishaps that are the lower level, that is well handled within the squadron. But once the cost of lives or resources elevates that, then that comes outside of the chain of command.

And so the idea that they have the authority, that without influence, you know, within the particular command, to be able to have access to the resources, we immediately, when an accident happens, we immediately sort of sequester that and make sure we hold the evidence, if you will.

And then we bring in, if the accident is serious enough, we bring in external, so they will have free rein to have all the information they need and the reporting chain that comes all the way up here to the headquarters.

I think we could always—and I will agree with my Army colleague Joe there—we could always deal with having a greater number of people to be in there observing and have more safety professionals. But I do have confidence in the independence of our entire safety system to have access all the way up to the Chief of Staff.

Ms. STRICKLAND. Okay. And then one more question.

Can you tell me what percentage of training accidents occur between Active Duty, National Guard, and Reserves? And, again, back to our Army and Air Force leaders, because I am responsible for JBLM [Joint Base Lewis-McChord].

General ALLVIN. Congresswoman, I am going to jump in real quick so we can get back to General Martin.

I do not have the specifics. We have them broken out by aviation and ground. But I can give you very detailed, if I can take that for the record, we can have that back to you posthaste, because we do have those broken out, but they are separately between aviation and ground incidents.

And I understand. Thank you for JBLM. I was stationed there at one point.

[The information referred to can be found in the Appendix on page 91.]

Ms. STRICKLAND. All right. Thank you.

General MARTIN. Congresswoman, I need to take that for the record as well, if I could, please.

[The information referred to was not available at the time of printing.]

Ms. STRICKLAND. All right. Thank you for your answers. And, again, thank you for your service.

I yield my time.

Mr. GARAMENDI. Ms. Strickland, that was a very interesting question. It had not occurred to me that we really need to look at the three different pieces that make up a full unit, and maybe there is a significant differential. I will be interested in having that information.

Ms. STRICKLAND. Thank you, Mr. Chairman.

Mr. GARAMENDI. I notice Ms. Speier is no longer bouncing around.

Would you like to have your 5 minutes?

Ms. SPEIER. Thank you, Mr. Chairman.

Mr. GARAMENDI. Go for it.

Ms. SPEIER. Let me start off by saying to this distinguished panel before us, in my recent visits to some of our installations, in terms of evaluating the culture and the status of our service members, it is amazing how forthright spouses are.

And at a recent visit to Fort Hood, one of the spouses said to me in an open gathering of spouses that the concern of the OPTEMPO was so great that she would come home at night and was always afraid that she was going to find her husband in the shower hanging.

So I encourage you to create opportunities to meet with the spouses.

I would like to go back to the AAV incident, the tragedy that happened last summer that Congressman Courtney had spoken about earlier. Only 7 of the 16 Marines survived. And I understand that part of the problem was the escape hatch and their inability to open the escape hatch.

Has that issue been resolved? This is for General Thomas.

General THOMAS. Thank you, Congresswoman.

What I would say is, you know, while the investigation is complete, we are about halfway through notifying the families of the investigation findings, and that will occur during this week. As you know, making sure the families are fully informed and answering their questions is our first priority.

We are happy to come back to the committee and discuss questions about the material readiness, specifically to your question, on the escape hatch.

Ms. SPEIER. All right. It sounds like you are not going to answer the question right now, and I don't have a lot of time. So I want to move on to another issue.

The ACVs [amphibious combat vehicles] are now, I guess, in production, and they have wheels instead of tracks. They are similar,

I understand, to the LAV-25s [light armored vehicles] and can operate at 60 miles per hour and climb a 60-degree angle and in many respects very similar to the LAV.

An Orange County Register article recently indicated that Marines were very concerned about this new vehicle. They were concerned about the turning radius and the potential for rollovers.

So I guess my first question is, will the ACV training be more rigorous? And how are we going to protect against rollovers?

General THOMAS. Congresswoman, rollovers for any armored vehicle is always a concern. In 2019 we had seven rollovers and the tragic loss of several Marines. In 2020, we had two. And in 2021, thus far we have had zero.

We have to, for all of our vehicles, including ACV, we have to improve our training to avoid these types of mishaps. One of the things that we are doing is we are increasing the number of driving events or training events for all the crews going through that particular syllabus.

And one of the things that we are doing with our new Safety Management System is for commanders of all these units to characterize the risk that they face in their particular location and their mission, and then to ensure that they are providing adequate supervision, detailed planning, and detailed debriefs for all of these missions that involve these vehicles.

Ms. SPEIER. All right.

So in terms of more rigorous training that is being contemplated, how do we guard against rollovers if they are a risk that we frequently encounter?

General THOMAS. Congresswoman, what I would say is this. The best way to do that—there are several areas that we have identified that are causal factors to rollovers. As I mentioned, one of the things we have to do is increase the number of driver training events.

We also have to make sure that our ranges are very well understood and all hazard areas are very well marked.

And then it gets back to detailed planning with the crews, with supervision of commanders. And that is the way that we are going to prevent those rollovers.

Ms. SPEIER. Are there simulators that are available in the marketplace to practice potential responses to rollovers?

General THOMAS. We have simulators as a part of our training system which have very good capabilities, but the Marines have to do actual training in the vehicle itself—in rough terrain—that takes into account all the other factors that I just described.

Ms. SPEIER. All right. My time is expired. Thank you.

And thank you, Mr. Chairman and Ranking Member.

Mr. GARAMENDI. Ms. Speier, while you are still available, the issue of the AAV off the coast of California [inaudible] did come up [inaudible] late next week, once the Marine Corps has finished [inaudible] the families. And we will let everybody have a few days' advance notice. That will be a telephone briefing. Okay?

Ms. SPEIER. All right. Thank you.

Mr. GARAMENDI. Very good. Thank you.

The gavel order remains Scott, Slotkin, Kahele, and Buchanan. So, Austin.

Mr. SCOTT. Thank you, Mr. Chairman.

One of the reasons we have fewer combat incidents that lead to death is because of how hard we train inside the United States. And while I do agree that we need to certainly limit [inaudible] as best we can, but the rigorous training is the reason that we don't lose more men and women in combat than we do.

And so we can't cut all of the risk out, especially with regard to EOD [explosive ordnance disposal] training and high-risk training, and expect that our men and women are going to be prepared for combat when that situation and the need for their expertise arises.

So, with that said, General Allvin, one of the things I was very impressed with is when the Yanky 72 accident occurred, is how good the investigation was with regard to narrowing down exactly what led to the accident, and then how fast the Air Force responded to changing the processes with regard to the propellers.

So I want to just tell you, the loss of life in Yanky 72, we obviously mourn those soldiers and the sailor that we lost, but I was pretty impressed with the investigation that came about.

In your testimony, you talk about maintenance effectiveness and how maintenance effectiveness drives higher aircraft availability rates, and then the availability rates leads to obviously the amount of training that we are able to do and, hopefully, that leads to fewer accidents.

The advanced manufacturing technologies, like 3D printing, robotics, and artificial intelligence that the Air Force is now using to improve maintenance timelines, can you describe some of the sustainment challenges and the remedies of those challenges that are driving low aircraft availability and fewer available training hours and how we use these advanced methods to fix that?

General ALLVIN. Yeah, Congressman, I am happy to do so, because I have got to tell you, this is one of the more exciting areas that I think we can really make some progress in. And it starts with the data. It starts with being able to have an analytic baseline to do this.

And I think a couple of things that are going on. The condition-based maintenance, which is not something we invented in the Air Force, the airlines have been doing it for a while, but the idea of theory of constraints and taking sensor-based analysis, putting sensors on particular parts of the aircraft and testing them and monitoring the heat, the vibration, et cetera, et cetera, is really going to help.

I would like it to go faster. I would think one of the reasons why the airlines have really advanced theirs as much, because, as you know, Congressman, one of the things about being able to do AI [artificial intelligence] and machine learning, you need lots of data. You need massive computing power, which we have. But you need lots of data.

And so the airlines have been able to take lots of data for like type aircraft and move that forward.

Ours, we have a little bit less of a homogeneous fleet and mission, but we are moving out on that and trying to find those things through the theory of constraints and look at those long lead items.

And understanding we also have to have an aggressive diminishing manufacturing sources and material solutions program to be

able to understand not only what are the parts that are going to be the critical path that are going to need to be maybe proactively replaced.

But also, when you have got diminishing manufacturing sources, to your point, on some of these additive manufacturing techniques, we may be able to generate those parts without having to go and be sort of vendor locked or have single-source suppliers.

So those are just a couple of the areas. I think it is just a broad, broad area that we can really look into a new way of extending and making sure aircraft availability is at its peak.

Mr. SCOTT. Thank you, General.

And just for the committee's sake, I mean, if we want to increase the level of flying hours, then we have to increase the aircraft availability. And that gets back to, I think, the predictive maintenance and some of the other things that we are doing that make more planes available for our pilots.

So, again, I have been impressed with the ability to find out exactly what caused an accident, the ability to remedy that so that it does not happen again.

And thank you all for your service.

And, again, we have got to train hard because we fight hard. And the reason we are as successful in combat as we are is because we push the limits inside the United States when we are training.

With that, I yield.

Mr. GARAMENDI. Thank you very much, Austin.

And also, General Allvin, you touched on a couple of things we have discussed before. The condition-based maintenance is one. And then Austin just used the other word, which is "predictive." These two things, this committee is way into this.

And then the [inaudible] analytical [inaudible]. So the gathering of information from ancient, I guess, clipboards that are sitting in some file someplace on a C-130 that is 40 years old. So we want to gather up all that information.

We are going to push this really hard, because it does deal with the safety issue as well as the flying hours and all the things that we have talked about here.

And I have got all of you gentlemen up here. I had an earlier meeting this morning. I am going to go to Ms. Slotkin in just a moment.

But we had an earlier meeting this morning about a company that is able to produce things that are not available anywhere, that broken piece that you absolutely have that you can no longer cannibalize from some piece of airframe somewhere.

I am thinking that we might have a virtual session and invite into that session any and anybody that thinks that they can meet this particular problem, a very acute problem of parts and pieces that are no longer available and no longer can be cannibalized, and then get the appropriate people on and let them strut their stuff and you guys can go from there.

Okay, enough for me. Ms. Slotkin, you are up.

Elissa. Hello. Elissa, if you are out there, we will come back to you.

I am going to stay with—then that would be Mr. Kahele.

Given that it is still 3 hours earlier in Hawaii, Kai, if you are available. One more call to Kai. Kai, if you are out there, it is your turn.

All right. We now turn to Mr. Buchanan, not a member of the committee, but we have run through the committee members. I believe we are going to have a couple of committee members that will return after you finish.

Mr. Buchanan, your question.

Mr. BUCHANAN. Thank you, Mr. Chairman. And I want to thank Ranking Member Lamborn for this opportunity today.

I am from the Tampa Bay area in Florida. I called on the committee to hold a public hearing on military training accidents last August, so I want to thank you for that opportunity.

Can you hear me all right?

Mr. GARAMENDI. Yes, we can.

Mr. BUCHANAN. Okay.

I became involved with this issue after being contacted by one of my constituents, Kimberly Weaver, and learning of the heartbreaking and preventable death of her son, Army Specialist Nick Panipinto. He is a 20-year-old.

Nick died in a training accident at Camp Humphreys in South Korea in 2019. A tragic series of errors and training failures contributed to Nick's death, including a lack of medical services on the base and significant delays in a medical response to the scene of the accident. Nick eventually arrived at the hospital 2 hours after the accident and died from his injuries later that day.

That is why I offered an amendment last year to the NDAA which has since become law, requiring the Pentagon to examine emergency medical services and capability at U.S. military bases around the world and outside, ideally even in the U.S., but outside the U.S., and report back to Congress.

Gentlemen, I want to thank all of our witnesses here today. Thanks to your leadership, we have got the best military on the planet, but we can always, as someone said, do better.

And I guess one of the things when we started looking at the facts of this is that in 2017, just 1 year, that they had 20 killed in combat and 80 killed in training. And then as we looked at it, there's many times where there's quite a few more killed in training than in combat.

So, General Martin, I would like to get your thoughts on where you see—what is acceptable. I mean, we don't want to lose one airman or one person in the Army, but I would like to get your thoughts in terms of when we see these numbers, so many more are getting killed in training than in combat. How do you respond to that?

General MARTIN. Congressman, first and foremost, my thoughts and prayers go out to that family. My son is a soldier in the United States Army, and I can tell you I can't imagine a day without him. And it has just got to be—I can't imagine it.

And, as a former commander of two installations and commanders of formations across the board in and out of combat, I will tell you that every single one of the accidents that I have seen happen are preventable. They are all preventable.

And so, with that in mind, we can never ever stop our relentless efforts to get after mitigating risk in our formations.

What we do is very, very difficult. We ask our soldiers and our formations to do a lot. And in order for them to be able to do the mission that they do there is a lot of dangerous activity.

So commanders at echelon are required to mitigate the risk to their formation. They are required to certify the soldiers on their equipment. They are required to ensure that as those soldiers operate that equipment independently, they do it under safe conditions; a risk assessment, identifying all the hazards and mitigating those risks, is done in concert with that.

And if they are operating in a tactical environment, commanders are responsible for their operating environment, the soldiers beneath them, to identify the hazards that are in that environment and mitigate those risks.

And on that day—

Mr. BUCHANAN. General, let me ask you, because we just have a certain amount of time. Why didn't they have in the case—you might not know exactly, but in Korea here at the base they were training—medevac helicopters and fully stocked ambulance?

Overseas it seems like we don't have as much capability immediately to help these young men and young women ideally. I am sure some places are better than others, but that is the sense of what we came up with, in terms of Korea, on this base.

General MARTIN. Congressman, I have read that accident investigation cover to cover. And based on my experience, I would call what happened in Korea an anomaly and a very unfortunate anomaly.

And so I understand the amendment that you have introduced that has become law, and I understand that we are to conduct and explore a study into exactly what the capability is across all of our installations in the Army.

I can tell you the two that I served at most recently, both installations that was the standard. But we need to make sure. And so we are committed to support the efforts of this study.

And, again, I am so sorry for the loss of your constituent's son.

Mr. BUCHANAN. And let me mention, General, I was very disturbed when I learned from Nick's mother that he didn't have a license to operate the vehicle. And I don't know, but it sounds like a serious vehicle. You would know. M2A3, a Bradley Fighting Vehicle. Sounds like a serious vehicle.

But it seems like there is no requirement for training, no classroom instruction before you start to road test these. In fact, according to a sworn statement from his unit master driver, his comments were their unit driving training program is nonexistent.

We have the greatest military in the world, the greatest leaders, including yourselves. How can something like this happen if that is the case? Again, a serious vehicle, no training, he is out driving it. It doesn't even seem possible to me.

But I will let you respond to that if you have any sense of it.

General MARTIN. Congressman, that is the classic example of a deviation from an existing standard. Army Regulation 600-55 in its current state and the state that it was back then required all drivers to be trained and certified. It is a three-phase program. That

hasn't changed. The rigor of that program has changed with the changes in the regulation.

But he should have been. And he shouldn't have been able to operate the vehicle without a license. And because of that, in the administrative investigation that resulted from that there was negligence that was identified at multiple echelons in the command, and the chain of command took appropriate action against those individuals who failed that soldier on that day.

Mr. BUCHANAN. And I will just tell you, the family, Nick's family would appreciate assurances that steps will be taken going forward so that parents don't have to go through this again. And I think that is the reason I got involved and active in making sure we passed this bill.

But also they just want the assurance from the Army and from you that we are going to do everything we can to make sure something like this doesn't happen again.

General MARTIN. To his family, my condolences. I am committed to making sure that doesn't happen again.

Mr. BUCHANAN. Thank you, General. And thanks for your leadership.

And, again, we have got the best military on the planet. I know things happen. But, again, this I am sure will provide a lot of reassurance to Nick's family.

Thank you and God bless.

Mr. GARAMENDI. Mr. Buchanan, the hearing record will be available, and you could pass that on to the family, you just heard from the vice chair where the U.S. Army is on that question.

Mr. BUCHANAN. And thank you, Mr. Chairman, for the opportunity to visit today, okay? Thank you.

Mr. GARAMENDI. Thank you.

Before we start the second round, we have got about another 25 minutes before we are scheduled to terminate.

Dr. GREEN. Mr. Chairman, if I could, this is Congressman Green. I haven't had a chance to go yet. I am in the queue, I think.

Mr. GARAMENDI. Actually, you are not, but you certainly did the right thing. You are now.

Dr. GREEN. Well, thank you.

Mr. GARAMENDI. Your turn, Dr. Green. Go for it.

Dr. GREEN. Thank you very much, Chairman. I appreciate that. Ranking Member Lamborn, thank you, too, for holding this hearing.

I want to thank all of our witnesses for being here today and for their life of service to this great country.

And, General Martin, it is a pleasure to see you leading at this level. My family, with a young infantry officer serving in the 101st Airborne Division, sleeps a little better knowing that you are the Vice Chief of the Army.

For the rest of the members on the committee, I served as a flight surgeon and took part in numerous investigations of accidents. The impact of these on families and on the unit and even the entire service is profound. And we just heard as one of our members questioned about a death of a constituent, it is horrific.

And we need to ensure we are giving these leaders the resources they need to train and train for war in a safe way. You can't zero

risk, but the better resourced the services are, the less likely accidents are to occur.

It was stated earlier in testimony that training impacts accidents. If you train less, the potential for accidents increases. And I recall from my days in the Army that the Army had a minimum number of flight hours for each aircraft type below which they expected accidents to increase.

And I wondered from our Air Force, Marine Corps, and Navy witnesses today, do you guys have a set number of flight hours per aircraft below which you expect accidents to increase?

General ALLVIN. Congressman, you said Air Force first. I will go ahead and lead out with that.

We actually in the Air Force, we don't have a predictive measure that just has number per aircraft. It really is on an individual basis, and sometimes individuals fly multiple aircraft.

There is a window that we do watch, and that happens down all the way at the squadron commander level. And let's say for a multi-crew aircraft, there is a certain amount of hours when we look.

And perhaps an aircraft commander, once they achieve maybe over 100 hours as an aircraft commander until they get to an instructor level, there is a certain threshold in which they are a little bit more likely, because they feel very confident and they haven't had their refresh.

So there are periods of vulnerability.

Dr. GREEN. Yeah. I remember that in the Army. The Army had that too where over the course of a pilot's career, there was that point where they got a little overconfident and then a point where that sort of went away.

But I meant do you have a measurable—it sounds like you don't.

Perhaps Navy, Marine Corps, just yes, no, do you all have a set number per month you got to hit or you expect accidents to increase?

Admiral LESCHER. Congressman, Bill Lescher here quickly from the Navy.

We do have our number we use. It is called tactical hard deck, and it varies by the type/model/series. But it is something we track closely to keep our units above the tactical hard deck. It does have that feature you talked about where they are seen as a knee in the curve for propensity for mishaps.

Over.

Dr. GREEN. Could you get that number to my office? I would really appreciate that.

And our Marine, General Thomas, do you guys have that number?

General THOMAS. Congressman, we do. We are aligned with the Navy on the tactical hard deck. It does vary per type/model/series, but nominally, 15 hours from a programming perspective is what we shoot for.

Dr. GREEN. Obviously, dollars in the DOD budget determines flight hours, whether it is maintenance dollars or fuel cost.

Could I ask each of you, if the DOD budget is cut 10 percent, will the flight hours decrease per month? And, if so, if we cut this budg-

et like some people are suggesting, can we expect more accidents if those training hours go down below that hard deck?

General MARTIN. Congressman, I will answer first from the Army. It is good to see you as well. I hope you are well.

You know, regardless, you have got to train our formations and you have got to have the courage to never quit. And if you do that, you will be able to see the mission through. [It is] 10.6 hours, for our Active Component, it is 10.6 hours per crew per month. It is 6.5 hours for Army National Guard. And it is 5.7 hours for the United States Army Reserve.

And just to answer a potential follow-up question, the reason why they are different is because we work 5-year cycle for Guard and Reserve for training, where Active Component it is less than the 1:5 ratio. It is a 1:2 ratio in terms of deployment to dwell. And so that is why those numbers are different.

But if the dollars go down, our home station flying programs could be impacted. I couldn't guarantee that, because it depends on where we prioritize that in reference to all of our other operational and maintenance requirements across the Army. But it is something that we are going to have to watch very closely, and sufficient funding is critical to our aviation training program.

Dr. GREEN. One quick question for you, General Martin. If you could talk a little bit about how the Army is doing risk management training for the company grade level. I know I have seen some of the senior grade brigade commander-level stuff. Could you talk about what needs to be improved and sustained in the company grade level? And that will be my last question, Chairman.

General MARTIN. Congressman, I will answer it mindful of your time. I will be very quick on this.

We train it in all of our professional military education courses, but we also train it in our pre-command courses. But really where the training happens is at our Combat Training Centers and what has happened at home stations as a result of that. It is something we ram home often as we continue to train in a very dangerous collective training environment.

Dr. GREEN. Thank you.

Thank you, Chairman.

Mr. GARAMENDI. Thank you, Dr. Green.

One of the fortunate things is this committee has members who really have a lot of experience in specific areas. And you were drilling into an area, Mr. Green, that I am going "hmm." I want you to continue to drill down on those things that you are interested in.

Dr. GREEN. Yes, sir.

Mr. GARAMENDI. We are going into a second round of questions here. I would start with myself, but I have had the opportunity to talk to all of these gentlemen prior to this hearing, so I won't add at this point other than to make—well, I will make my closing comment.

And then, Mr. Lamborn, if you want to come up with any second round of questions.

Before you do, Mr. Lamborn, there are a couple of members of the committee that may have returned that we skipped over.

Mrs. Luria, if you are here, it is your turn.

Mrs. LURIA. Thank you, Mr. Chairman.

It is good to be able to be part of this conversation.

And I will just focus specifically on the Navy. And I know that we had these two tragic incidents in 2017 with the USS *Fitzgerald*, the USS *John S. McCain*.

And, Admiral Lescher, in your testimony I was very interested in that section. You specifically outlined the 111 recommendations that were made in the follow-on report.

And in your testimony, at the bottom of page 3, I just wanted to see if you could provide some more clarity on this statement: "Improvements have been made in Surface Warfare Officer training." Then you list some other items.

So do you have specific metrics you can cite to say what improvements have been made and how you have been able to measure this over time since 2017?

Admiral LESCHER. Yes, ma'am.

So I know you are quite familiar with the Readiness and Reform Oversight Council. So some of the metrics would be in the training itself.

Again, I know you are familiar with in terms of the Basic Division Officer course, the JOOD [Junior Officer of the Deck] course, the certifications, the assessments that come out of that. So those are certainly tracked as well as the go/no-go process on those elements.

Some of the other metrics in terms of manning. We for sure keep track on fit/fill and TYCOM [U.S. Navy Type Command] manning actions, critical NEC [Navy Enlisted Classification] shortfalls.

In terms of training metrics, the milestone assessment performance I talked about in the SWO manned progression. Looking at the logbook data. Again, I believe you are familiar with that analysis.

SWO qualification timelines is a metric that is important. Tier one, Tier two certifications course.

But then equip again. SEANAV [Naval Sea Systems Command] figure of merit, INSURV [Board of Inspection and Survey] performance, deferred maintenance.

Other metrics would include near-miss reporting trends. And I think I highlighted in my written testimony we are seeing as part of the strong culture change that Roy Kitchener is driving a strong increase in the reporting of near-miss and HAZREPs [hazard reports] as well.

So I would highlight those as some of the metrics that we use to keep a close eye on the implementation of the RROC [Readiness and Reform Oversight Council].

Mrs. LURIA. Well, thank you. And it sounds like you have developed quite a few metrics.

Are there any problem areas within that data or negative trends that you have identified over the course of the last 4 years and since implementing these?

And I also noticed that you mentioned that you have improved in combined integrated air and missile defense and anti-submarine warfare training as well. Are there any particular areas within that that are of concern?

Admiral LESCHER. I would highlight, ma'am, as probably at the top of the list of concern right now is [inaudible] material condition.

I think you were offline earlier when Congressman Courtney asked about how we were driving some of this change. And really, by bringing alive the power of the TYCOMs, and the TYCOMs to have a strong voice: Hey, do not progress. I have to replace this engine. I have to redo this exercise. My fleet commander is listening.

But in terms of other—so I think that is a strong element. In terms of where we can do better, as we look at INSURV performance, I look at PMS [planned maintenance system]. I look at the ability. Do we have the proper manning to do the maintenance?

And so this is leading to some thoughtful conversations about things such as—it was touched on by the chairman earlier—some of the condition-based maintenance pilots we have on *Detroit*—we have one on a DDG, one on an [inaudible]—as well as bringing in some of the lessons we have learned from aviation journey, where we went from 255 up jets for 10 years to today's 341.

And part of that journey was controlling maintenance demand signal. This was a really interesting journey where we saw, for example, when we had the Naval Aviation Systems Command to do a deep dive on the F-18 and then the E-2 maintenance program, we were doing maintenance at a periodicity beyond what was demanded from an engineering perspective and in some cases simply hadn't been updated.

So I know Roy is looking at this. So both condition-based maintenance and maintenance reset, to properly scope the PMS to get after some of these INSURV trends.

Mrs. LURIA. Well, thank you. And I know that it has been a recent topic of discussion amongst several members of this committee and Seapower that the current law does not continue to require the Navy to report INSURV findings to Congress.

But I hope you would agree that it is a both a useful process and inspection and very useful dialogue for those Members of Congress to understand the readiness of our ships. And we look to include language that will continue those reports, because I think they are very meaningful.

So thank you again for your testimony today.

And I yield back.

Mr. GARAMENDI. Thank you very much, Mrs. Luria.

We will begin a short second round. We have got about 10 minutes.

Mr. Lamborn.

Mr. LAMBORN. Okay, thank you.

I would like to just quickly touch on technology as a tool to improve safety.

For any one of you, what technologies might be useful to make operating on training ranges safer while still maintaining the tactical feel of operations?

And whether it is currently in operation or in the development stage that you are aware of, are any of you able to answer that question?

General MARTIN. Congressman, I will go ahead and start. I will be quick so my colleagues have an opportunity to talk too.

I think that the one word that comes to mind is autonomy. I want to make sure you understand exactly what I mean. I don't mean the aircraft flying by itself, the vehicle driving by itself, but pilots and drivers enabled by autonomy that allows them to take some of the tasks that would be demanding their time and their thought and let a machine do that so that they can focus on the most important tasks.

In the training environment, that is good. That will actually mitigate risk, because more focus on the most important or higher risk tasks that pilots or drivers have to do.

But in combat, it is huge, because you want to focus on the enemy. Anything you are doing to not focus on the enemy takes you away from focusing on the enemy.

And so autonomy is probably the single most important thing. But folks want to say that, okay, let the aircraft just fly itself and we will have people. It is not that simple. Humans have to be part of the loop for a whole host of reasons that I don't have time to talk about.

But that is my thoughts from the Army.

Admiral LESCHER. Sir, Bill Lescher from the Navy, very, very quickly.

I would offer Live, Virtual, Constructive training is a core area that in complementary with flying on the range is a powerful improvement to the quality of training. And I believe as well it will be nondiscretionary, in the sense that it is a way for to us train high-end capability and high-end tactics, techniques, and procedures that we don't want to reveal more broadly to anybody who might be watching.

But a strong push, for any number of reasons, to get after Live, Virtual, Constructive technology.

The other thing I would highlight, the Navy is—there is so much of our high-end aviation training at Fallon, Nevada.

And we are quite constrained by what we see we need to operate to get the proper ranges of weapons, et cetera. And, again, we can work together as we work to broaden the range, also to bring the best type of technology on board.

Over.

Mr. LAMBORN. Admiral, on that point, let me say that we made a push in this committee to expand Fallon last year, and we ran into some resistance in the Natural Resources Committee.

I think we need to make another push there and not give up on that, so that your naval aviators have the facilities they need to do proper training, especially in this new day and age.

Admiral LESCHER. Yes, sir. It is our top legislative priority for our leadership, clearly for our aviators. And I look forward to working with the committee and continuing to get after that this year.

Mr. LAMBORN. Maybe I will just turn it back to the chairman, for the sake of time.

Mr. GARAMENDI. Thank you, Mr. Lamborn.

If any of the committee members have a quick question that absolutely has to be asked, raise your hand and go for it.

Mr. Green.

Dr. GREEN. Mr. Chairman, can you hear me okay?

Mr. GARAMENDI. Yes.

Dr. GREEN. Just a quick question for any of the witnesses today. Are there resources that we could authorize besides money? You know, is it a training system or more virtual training before they get in the cockpit that would enhance or decrease accidents?

I am thinking about what we can do. I know you all know what you have to do to keep accidents from happening. What do we need to do to support you in addition to just dollars?

General ALLVIN. I will take a crack at that, Congressman.

I think we are all entering this journey together, and we have touched on a lot, with the advent of technology and bringing on new systems, bringing on the things that my colleagues were talking about—Live, Virtual, Constructive system.

But, I think, fundamentally, where we could continue to use your help in moving forward on this journey together, is the manner in which we are going to mature these is different from traditional acquisition programs.

And so sometimes, if we are going to innovate fast, we need to be able to fail fast and have a new way, but still have you preserve your oversight. We know that is important.

So, we are going to be moving into areas where we are going to be investigating technologies with respect to command and control and leveraging these in ways that don't look like a traditional acquisition profile, with milestone A, milestone B, and then it ends up with a shiny object over at the end.

But the idea that we can work together as a joint force and investigate these new technologies, fail fast and fail cheap, while at the same time giving you the confidence that you have the oversight so we can continue this trust relationship.

And once we do that and we can transition into this new way of developing capabilities in a way that has the proper congressional oversight and trust that the funding is going to the right spot, I think that is going to be so important to allow us to accelerate.

It will be better warfighting. It will be better training. It will just be a better approach. Because there is a new way that we have to be able to develop and field capabilities that is different from the 20th century things that sometimes we are still shackled with.

That would be my input.

Dr. GREEN. Yeah, I want to see organizations that learn in real time, and I know you do too. And I just want to make sure you are resourced to have real-time performance improvement, process improvement happening across the formations, and if there is anything we need to do, to make sure you have got it. That is what I am asking.

So thank you for that.

Mr. GARAMENDI. Mr. Green, we are going to let it go at that.

Dr. GREEN. Okay.

Mr. GARAMENDI. I think Mr. Moore had a question that he wanted to ask.

Mr. MOORE. No, nothing from the [inaudible], Chairman. We are good.

Mr. GARAMENDI. Good.

Elaine.

Mrs. LURIA. No, I am fine. Thank you.

Mr. GARAMENDI. Well, we could let the other three witnesses answer Mr. Moore's question if you would like to, and then I am going to shut this thing down.

Admiral LESCHER. Mr. Chairman, Bill Lescher here. I will take a stab at the question as well to build on what General Allvin said.

One thing I think the committee can do—and it is probably self-evident since I know the committee already is working hard at it—is to continue to be an advocate in the broader Congress for readiness.

You know, periodically you hear the self-talk in the building here about there are strong constituents and even policy advocates for certain pieces of hardware, but where is the advocacy for readiness? And I always educate them, we have those advocates in these readiness committees.

And I think it is important for us to educate more broadly even outside the defense oversight committees on the importance of readiness. And so I again am looking forward to working in partnership with the committee on that message.

You know, the Congressman asked a question earlier that we didn't broadly answer about, hey, what happens if top line comes down? My picture of that is we are not going to accept a hollow force. And so we are not going to accept increased risk.

But we will for sure have a smaller and less lethal Navy as we adapt to that smaller top line and do it in the responsible way, by not having a hollow force. And so I think that is part of the message as well.

Over.

Mr. GARAMENDI. General Martin, do you want to add?

Or, General Thomas, you can add if you like.

General MARTIN. Congressman, I am going to give the straight answer of I endorse what both the Navy and the Air Force recommended. Both of those areas are important, especially the advocacy for OMA dollars and readiness resources for our formations. It is huge.

General THOMAS. And, Chairman, I would add to all of my colleagues' points that your advocacy for readiness is key. As Admiral Lescher said, if we see a reduction in top line, we are going to maintain our readiness, but it will force us to be a smaller force.

And then I would just say that, from a technology standpoint, I think that we are moving in the right direction.

But I would also support General Allvin's comments that supporting what I would call acquisition agility from the committee is going to continue to be important while at the same time preserving the oversight of the Congress.

Mr. GARAMENDI. I have got about another hour, maybe 2 hours of questions I would love to get to all four of you, and some of them are slightly off the subject matter.

With regard to acquisitions in the Air Force, we had a GAO report to us yesterday about satellite systems and GPS [Global Positioning System] systems. Rather concerning. And that is an issue we take up with General Allvin and your colleagues a little later.

But, clearly, there is an acquisition issue that goes across really all of the platforms, particularly the new technologies that all of you talked about.

With regard to the readiness, we have had many discussions about maintaining the equipment. Looking this morning at the Early Bird Brief, and I noticed that I have become an advocate of not going to buy anything new until we maintain what is old. And I mean it. I suspect I may lose that battle, but I am not going to go down easy.

So we are way into maintaining the equipment that we have, and you gentlemen have heard me on this before. And I really, really mean it.

So the other part, this hearing was specifically on the safety and accidents, but it cuts across to the other things that this committee has been working on, maintenance and availability of equipment so that you have the chance to practice. So we will continue on those.

For our presenters, I really appreciate the hearing today. You were forthcoming. You answered the questions of the committee in a way that was as complete as possible in the time allowed.

To my committee members and staff that are on, most every question leads to another question. And so if you have that follow-up question, let us know. And maybe it will be a written, maybe it will be a briefing, formal or informal.

So follow up to all of the committee members, and particularly to Mr. Lamborn, who has a specific task on the minority side.

I look forward to working with all of the witnesses, General Thomas, General Martin, General Allvin, and Admiral Lescher. We have got things to do together. We will be doing a new NDAA and we are beginning that process now. Some ideas have come from this hearing and from the other hearings.

Let it be known, anybody that wants to listen, we are going to drive the readiness issue across the board. Things that we didn't talk about here, other things that we will talk about. And along the way, hopefully it will turn out better in the future.

Thank you so very, very much to everybody that has been participating on this. A big shout-out to the staff. The minority staff, the majority staff did great work lining it up to the witnesses. Thank you.

Have a good afternoon, evening, and we will look forward to our next opportunity to talk.

Thank you all very much.

This hearing is formally adjourned.

[Whereupon, at 5:05 p.m., the subcommittee was adjourned.]

A P P E N D I X

MARCH 23, 2021

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

MARCH 23, 2021

RECORD VERSION

STATEMENT BY

**GENERAL JOSEPH M. MARTIN
VICE CHIEF OF STAFF, UNITED STATES ARMY**

BEFORE THE

**SUBCOMMITTEE ON READINESS
COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES**

FIRST SESSION, 117TH CONGRESS

ON LEARNING FROM AND PREVENTING FUTURE TRAINING MISHAPS

MARCH 23 2021

**NOT FOR PUBLICATION UNTIL RELEASED BY THE
COMMITTEE ON ARMED SERVICES**

Introduction

Chairman Garamendi, Ranking Member Lamborn, and distinguished Members of the Subcommittee on Readiness, thank you for this opportunity to discuss how the Army has learned from past training mishaps and our various initiatives to prevent them in the future. As evidenced by your decision to hold this hearing, it is clear that you have the best interest of our brave men and women at heart and I appreciate your shared concern for their safety and well-being. On behalf of the Acting Secretary of the Army, the Honorable John Whitley, and the Chief of Staff of the Army, General James McConville, thank you for your steadfast support to our Soldiers, and for the invitation to join you today. I look forward to a productive discussion.

People

Soldiers are the Army's number one priority and our most precious resource, on loan from the American people. Placing our people first means ensuring their safety during the conduct of realistic training. While realistic training is necessary to best prepare our Soldiers to perform their jobs in combat, it includes inherent risks we strive to mitigate. The Army takes seriously any event which places our Soldiers in danger, causes them harm, or results in fatalities. Although we have made progress and have seen a significant reduction in Class A accidents over the past few years, we are not, and will not, be satisfied until all of our Soldiers are able to return home to their families after the conduct of their training. The Army owns each and every training mishap and assumes full responsibility for the prevention of future mishaps.

Aviation Mishaps

The Army has made important progress over the past few years toward ensuring the safety of our Soldiers during training. For FY20, Army aviation mishaps sat at a ten-year low and FY20 was the safest year in Army Aviation history in both the total number of Class A mishaps (6) and the Class A mishap rate per 100K flying hours (0.63). The FY20 Class A-C mishap rate per 100K flying hours (5.95) is well below the five-year average (7.29), but slightly above FY19 (5.62). Despite COVID-19 restrictions, the Army flew approximately 90% of planned flying hours in FY20. FY16 to FY20 is the safest five-year period in Army Aviation history with an average Class A mishap rate of 0.93 per 100K flying hours. Simultaneously, our Combat Aviation Brigades are reporting the highest overall readiness levels, and our active duty operational fleet remains at or above an 80% operational readiness rate.

While Army mishaps are caused by either human error, materiel failure, or environmental factors, most accidents are attributable to human error. Six of six Class A aviation mishaps in FY20 were attributed to human error. From FY16-21, manned aviation mishaps were caused by human error 86% of the time, with materiel failure identified as the cause of 14%. This historical norm is 81% human error. For example, mishaps from FY20 which resulted in fatalities include an AH-64 Apache controlled flight into rising terrain causing two fatalities, a UH-60A Black Hawk crew failing to initiate proper procedures during a maintenance test flight resulting in three fatalities, and an MH-60M Black Hawk instructor pilot incorrectly executing a diving fire maneuver resulting in two fatalities and injuries.

Ground Mishaps

Total Army on-duty tactical vehicle fatalities have averaged 11.8 annually from FY16 to FY20, which is the lowest five-year average since record keeping began in 1972. In FY20, 11 Soldiers were fatally injured in tactical vehicle mishaps, compared with 13 in FY19.

On-duty ground mishaps investigated by the U.S. Army Combat Readiness Center (USACRC) are nearly 100% due to human error. Of those mishaps assessed as due to human error, most identify a deviation from a standard as a contributing factor. Examples include speeding, not adhering to operator's manuals, poorly executed technical procedures, improper route or terrain reconnaissance, inadequate mission and crew rehearsals, failure to adhere to prescribed vehicle load plans, failure to identify hazards such as water crossings, bridges, or complex terrain, poor crew coordination, and insufficient pre-combat checks and inspections.

Prevention

Although the majority of mishaps result from human error, this does not mean we are placing the blame squarely on our Soldiers and operators. The leadership of the Army and the Army as an organization take full responsibility. As stated above, we own each and every incident.

What does "fully owning" each accident mean to us? First, it means acknowledging the organizational characteristics that may have unintentionally and indirectly contributed to the cause of mishaps. This includes an excessive operational tempo (OPTEMPO) which negatively affected home station training programs. Second,

it means the Army is committed to the conduct of thorough and unhindered investigations into each accident, leaving no stone unturned, to fully understand the causes of each mishap. Following that, we will expeditiously implement the recommendations developed during each investigation and by our subject matter experts in the field. Finally, we are committed to holding ourselves accountable and ensuring systems are in place to enforce training standards and procedures across the board.

Philosophy

Last year, the Secretary and Chief of Staff of the Army announced that our People are the Army's number one priority. This philosophy has permeated the entirety of our organization and resulted in several initiatives. The first is our emphasis on individual- and crew-level training. In the past, we've paid for readiness at higher echelons by sacrificing lower echelon training proficiency to a degree, but we have since shifted our focus to ensuring that our organization, at every level, is highly trained, disciplined, and fit. This mindset has enabled our Army Staff to develop several initiatives to reduce the OPTEMPO on our units, effectively giving time back to commanders and Non-Commissioned Officers (NCOs) to train their Soldiers to a higher level of individual and crew proficiency.

Operational Tempo (OPTEMPO)

One initiative aimed to reduce unit OPTEMPO is the implementation of the Regionally Aligned Readiness and Modernization Model (ReARMM). ReARMM is our

new framework for integrating and synchronizing requirements that are balanced to provide predictability for our training and modernization efforts, which we believe will reduce the OPTEMPO challenges straining our organizations and people. This model allows units to plan predictable and mission-tailored training, implementing regionally focused activities into unit training plans. As a result, commanders and NCOs will have more time to train their Soldiers on the proper operation of tactical vehicles and to plan and rehearse missions to a high standard.

In addition to ReARMM, the Army has taken action to reduce the stress of OPTEMPO on our Combat Aviation Brigades (CAB). We determined continuous rotations to the Combat Training Centers (CTCs) and the deployment requirements associated with them were reducing the individual and crew proficiency of our aviators. To remedy this, new CTC business rules limit CAB participation to no more than two rotations per year. This policy will create more time for needed individual and crew level training at home station and reduce the time preparing for and executing deployment operations.

Talent Retention

The Army is taking several other steps to increase the overall level of proficiency among our flight crews. Retaining our best talent is critical. We are offering our best talent targeted retention bonuses, and Aviation Incentive Pay is now at the maximum congressionally authorized levels. Quality of life for our pilots and families is another focus and we are working on longer assignment stability incentives for aircrew members. We are also investing in our people through five central Quality of Life

priorities: (1) housing, both family and barracks; (2) transforming healthcare; (3) improving and adequately resourcing Child and Youth Services; (4) improving spouse employment opportunities; and (5) minimizing the impact of Permanent Change of Station (PCS) moves.

Recent Policy

To improve the safety of our Soldiers as they operate tactical vehicles, the Army published the Army Driver and Operator Standardization Program (Army Regulation 600-55) in September 2019, directing significant changes in driver certification, trainer certification, and commander involvement. This standardized program requires both written and hands-on exams.

Safety Investigations

The Army is a learning organization and is committed to conducting thorough and in-depth investigations into each mishap, with the goal of fully understanding the circumstances surrounding the event. The USACRC is dedicated to preserving Army readiness through analysis, training, and the development of systems that prevent accidental loss of our people and resources. The investigation processes used by the USACRC is second to none and exists to find out why a mishap occurred and to provide timely recommendations to prevent similar mishaps from occurring again.

This process begins with the selection, training, and certification of mishap investigators. The training and certification process is a rigorous six-month program, culminating with the successful investigation of a Class A mishap under the supervision

of a certified instructor. This process ensures the USACRC can field five certified teams simultaneously, anywhere in the world, to conduct investigations regardless of the complexity or location. When the Army experiences a significant mishap, the USACRC will send two certified investigators to serve as the Board President and Board Recorder of a Centralized Accident Investigation (CAI). The team will quickly establish a Safety Investigation Board (SIB), consisting of a team of subject matter experts from various agencies that ensures the proper expertise is available. The Board President oversees a deliberative process as outlined in DA PAM 385-40, and typically requires 21 days to complete the process and deliver findings and recommendations. Recommendations are directed at multiple layers of unit leadership at all echelons in the Army. Commands involved are required by AR 385-10 to immediately acknowledge recommendations.

Accountability and Compliance

Accountability is of the utmost importance to ensure recommendations stemming from the conduct of investigations are implemented. The Army must continue ensuring we hold ourselves accountable to the policies and standards in place. To assist commanders and the USACRC with accountability, we fielded the first two of five applications of the Army Safety Management Information System 2.0 (ASMIS-2.0), the Mishap & Near Miss Reporting, and the Audits, Surveys & Inspections modules. When completely fielded, ASMIS 2.0 will provide commanders and safety professionals across the Army with unprecedented analytic capability and access to Safety and Occupational Health (SOH) data. ASMIS 2.0, as a family of systems, will shift the paradigm toward greater reliance on leading indicators, while the legacy ASMIS-R relied solely upon

lagging indicators (after the fact). A benefit of this system is the greater ability to leverage leading indicators and get to the predictive analysis needed to assist commanders in mitigating mishaps before they happen and preserving readiness

To ensure compliance with Army ground vehicle maintenance and driver training regulations, the U.S. Army Forces Command developed and implemented the Ground Readiness Evaluation, Assessment, and Training (GREAT) inspection program. These inspections occur at the Brigade Combat Team to battalion and company levels. These inspections include thorough review of each unit driver's training program to ensure compliance with Army policies.

Administrative Investigations

For Class A accidents, including those resulting in fatalities, an Army Regulation (AR) 15-6 administrative (or command) investigation is conducted in addition to the safety investigation described above. The two investigations operate independent of each other, but share all factual information and evidence available. The AR 15-6 investigation may result in the recommendation of disciplinary actions where appropriate and is an important tool to enforcing accountability and adherence to policy. Both investigations are reviewed up the chain of command and often to the Chief of Staff of the Army when appropriate.

Conclusion

To reiterate, although we've seen progress, we will not rest until all of our Soldiers return home safely to their families from their training. The Army is taking

concrete steps to improve the safety of our Soldiers as they operate aircraft and ground tactical vehicles through organizational measures to improve how we care for our people, by shifting focus to individual and crew training to build cohesive teams that are highly trained, disciplined, and fit, by improving how we conduct investigations and risk mitigation, and by holding ourselves accountable to standards and policies.

Gen. Joseph M. Martin
37th Vice Chief of Staff of the Army

Gen. Joseph M. Martin assumed duties as the 37th Vice Chief of Staff of the Army, July 26, 2019.

Martin graduated from the U.S. Military Academy in 1986 and commissioned as an armor officer. He has served in a variety of troop assignments. From 1987 to 1990, he served as a tank platoon leader, scout platoon leader, and company executive officer in the 1st Battalion, 37th Armor Regiment, 1st Armored Division. Upon graduation from the Armor Officer Advanced Course, Martin was assigned to 4th Battalion, 37th Armor Regiment, 1st Infantry Division, where he commanded Company B during Operation Desert Storm and at Fort Riley, Kansas. He then commanded the 1st Battalion, 67th Armor Regiment, 4th Infantry Division, during Operation Iraqi Freedom in Ba'Qubah, Iraq and at Fort Hood, Texas. Martin commanded the 2nd Brigade, 1st Infantry Division from Fort Riley, Kansas, and deployed with that command to serve in northwest Baghdad, Iraq. Following brigade command, he became the chief of staff of III Corps in Fort Hood, Texas. From June 2012 to April 2013, Martin commanded the U.S. Army Operational Test Command. Martin served as deputy commanding general (Maneuver) for 1st Cavalry Division, commanding general of National Training Center, Fort Irwin, California, and commanding general of 1st Infantry Division, where he deployed and commanded the Combined Joint Force Land Component Command in Operation Inherent Resolve. His most recent assignment was the director of the Army Staff.

Martin's key staff assignments have included observer controller, Fort Irwin, California, instructor/writer and aide to the commanding general at the U.S. Armor Center at Fort Knox, Kentucky. He also served as a battalion operations officer, aide to the III Corps commanding general and brigade operations Officer at Fort Hood, Texas. Additionally, Martin served as the armor branch chief and chief of the Maneuver, Fires and Effects Division, at the U.S. Army Human Resources Command in Alexandria, Virginia. He also served as the Initiatives Group director for the commander, U.S. Forces Iraq and U.S. Joint Forces Command.

Martin holds a master's in education from the University of Louisville. He is a graduate of the U.S. Army Command and General Staff College and the United States Army War College.

Martin's awards and decorations include the Defense Superior Service Medal, the Legion of Merit, the Bronze Star Medal with "V" device, the Meritorious Service Medal and the Army Commendation Medal with "V" device. He also earned the Combat Action Badge and the Parachutist Badge.

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UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

STATEMENT OF

ADMIRAL WILLIAM K. LESCHER
VICE CHIEF OF NAVAL OPERATIONS

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE SUBCOMMITTEE ON READINESS

ON LEARNING FROM AND PREVENTING FUTURE TRAINING MISHAPS

MARCH 23, 2021

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

Chairman Garamendi, Ranking Member Lamborn, and distinguished members of the House Armed Services Subcommittee on Readiness, thank you for the opportunity to appear before you today to discuss Navy mishap trends, our lessons learned, and the proactive steps we are taking to better understand and control risk, improve safety outcomes, and increase the combat effectiveness of our force.

Our nation requires a Navy that is ready to deploy globally in defense of U.S. interests. 2020 provided a strong example of how the U.S. Navy is executing that imperative. While large portions of world activity were curtailed with the pandemic, the Navy's operational tempo continued at a high pace, highlighted by eight major Carrier Strike Group and Expeditionary Strike Group deployments. In 2020, Naval Aviation flew over 700,000 flight hours and Navy Afloat forces amassed over 23,000 total steaming days. In a number of instances, U.S. Naval Forces' deployments were extended to support high priority Secretary of Defense tasking. One such unit, the USS Nimitz (CVN 68) Carrier Strike Group, returned last month from the longest aircraft carrier deployment in modern history.

This performance strongly aligns with CNO Gilday's message to the force: *"Failing to maintain our advantage at sea will leave America vulnerable. Mission One for every Sailor—active or reserve, uniformed and civilian—is the operational readiness of today's Navy."* In alignment with this direction, the Navy is bringing a strong sense of urgency in addressing the critical topics of this hearing, working comprehensively to improve readiness generation outcomes and our safety culture.

Get Real – Get Better: Enabling a Culture of Excellence

The Navy has learned hard lessons over the past few years from major mishaps. Our improvement path is aligned to the “Get Real, Get Better” approach—proven in the Navy’s work to transform Strike Fighter readiness, improve private shipyard depot maintenance performance, and drive better outcomes in other key mission areas. The “Get Real” element demands rigorous self-assessment, strong characterization of current performance, and detailed root cause analysis to identify the conditions or behaviors that led to a mishap. This “Get Real” element illuminates performance and capabilities as they are, as actually measured, rather than what leaders aspire performance to be. The “Get Better” element applies these root cause insights to develop, implement, and track action plans that drive improvement in the organization’s operational and safety performance, using a strong cadence of measurement and accountability.

A recent example is the Navy’s response to the 2017 USS Fitzgerald and USS John S. McCain mishaps. Two major reviews – the Comprehensive Review (CR) and Strategic Readiness Review (SRR) – identified root causes of the mishaps and made 111 recommendations aimed at driving Navy readiness improvement and preventing such consequential mishaps in the future.

The Navy’s Readiness Reform & Oversight Council (RROC) executed action plans to address all 111 CR/SRR recommendations with a governance structure to monitor and measure progress. With the support of this committee, the Navy invested in and employed meaningful reforms in how we man our surface fleet, train our crews, schedule and execute workups and deployment, and how we equip and maintain our surface force.

Improvements have been made in (1) Surface Warfare Officer training; (2) Use of ship simulators to train shipboard teams in Navigation, Seamanship, and Ship Handling; and in

Combined Integrated Air and Missile Defense and Anti-Submarine Warfare training; (3) Readiness for Sea Assessments; (4) Force Generation Models; (5) Shipboard manpower requirements; and (6) Comprehensive Fatigue and Endurance Management Program.

This structured “Get Better” approach requires ongoing measurement of improvement self-talk against actual performance. Specific examples of measured outcomes include: (1) Establishment of Commander 7th Fleet (C7F) weekly Fleet Management Coordination Board, which more closely manages OPTEMPO; (2) Type Commander (TYCOM) semi-annual assessments of Basic & Advanced Phase performance versus entitlement, where for 2020 both Commander, Naval Air Force Pacific (CNAP) and Commander, Naval Surface Force Pacific (CNSP) completed 100% of Basic Phase training within entitlement (CNSP up from 38% in fiscal year 2019); (3) Readiness generation improvements where 100% of forces deployed with full readiness certifications; and (4) Forward Deployed forces achieving a 0% certification expiration rate, compared to 2015-2017 rates of 6-40% expiration.

USS Bonhomme Richard

In July 2020, USS Bonhomme Richard (BHR) suffered a catastrophic shipboard fire during a maintenance period in San Diego, CA. The BHR fire marked the 15th significant fire onboard a U.S. Navy vessel in the past 12 years, demonstrating that previous leadership interventions of the type the Fleet Commanders aggressively employed following the BHR fire have not in the past resolved root causes sufficiently to drive enduring change in the frequency of shipboard fire mishaps. Early this year, I directed the Fleet Commanders, working with the Naval Safety Center, Naval Reactors, Naval Sea Systems Command and Naval Installations Command, to conduct a detailed review of these shipboard fires. The goal is to illuminate

systemic issues regarding the standards, culture and environment driving daily discipline in shipboard stowage, cleanliness and readiness, and to recommend actions that establish the necessary culture and practices required to change Navy fire safety outcomes in an enduring way. This probe into systemic root causes of long-term shipboard fire safety performance completes in July and is designed to provide a foundation to broadly improve all Navy safety performance outcomes.

Class A Aviation Flight Mishaps

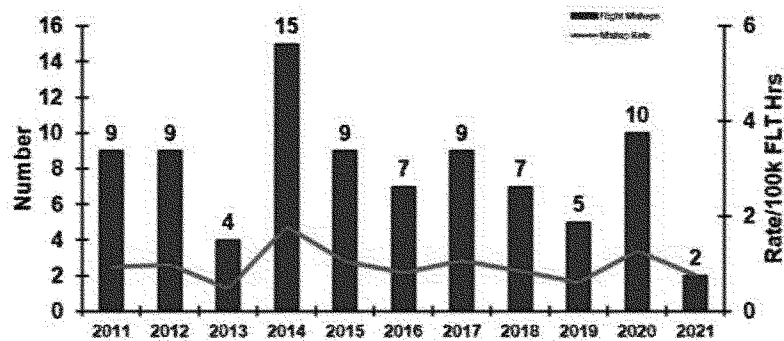


Figure 1: Naval Aviation Class A Mishaps (flight)

Naval Aviation Safety Update

Naval Aviation and the Naval Safety Center have fully reviewed the analysis and recommendations of the National Commission on Military Aviation Safety (NCMAS) that examined mishaps between fiscal year 2013-2018. The U.S. Navy is working closely with the Department of Defense to provide a department wide response to NCMAS. In the interim, Naval

Aviation continues the work to continually improve our safety culture. In 2019, Naval Aviation had its best year in the last decade for total mishaps (287 Class A-D mishaps/ 33.8 mishaps per 100,000 flight hours) and was the first time in 10 years where total mishaps did not increase. The 2020 A-D mishap totals dropped to 280 and there were zero Class A fatalities, while the overall mishap rate (36.4 per 1000,000 flight hours) was slightly higher than 2019. Class C Aviation Ground Mishaps (AGM) were the driver of the increased mishap rate in 2020.

Aviation Ground Mishaps: As part of Naval Aviation's Culture of Excellence Campaign, Naval Aviation began a campaign in 2020 to deep dive root causes of AGM, such as procedural compliance and human factors. Naval Aviation is leveraging data analytics, training and leadership intervention to bend the curve on AGMs. Specific initiatives include:

- (1) Fleet Readiness Analytics Group (FRAG): The FRAG is applying internal and external data analytics to identify trends, readiness impacts and drivers associated with mishaps. The FRAG is aligned with our maintenance, safety, and operations processes to identify catalysts that can enable positive change.
- (2) Safety Support Group (SSG) Pilot: Naval Aviation is executing this new program where TYCOM, Wing and Naval Safety Center subject matter experts conduct no-notice quality assurance visits to flight lines and commands.
- (3) Maintenance ASAP: Implemented as a daily feedback tool to provide squadron leadership with insight into maintenance practices, risks and improvement opportunities in their commands.

Physiological Event (PE): In 2017, the U.S Navy temporarily grounded our fleet of T-45 trainer aircraft after a series of unexplained Physiological Events (PE) where instructors and students reported hypoxia-like symptoms during flight. In response, the Navy stood up the

Physiological Episodes Action Team (PEAT) to study PE and implement improved safety equipment and training to avoid hypoxia events. This comprehensive work led to mechanical fixes, increased aircrew education, and PE specific policy changes. As of March 2021, T-45 PE rates are down 94% since July 2017, and F/A-18 and E/A-18G PE rates are down 77% since November 2017.

Class A USN/USNS Afloat Mishaps

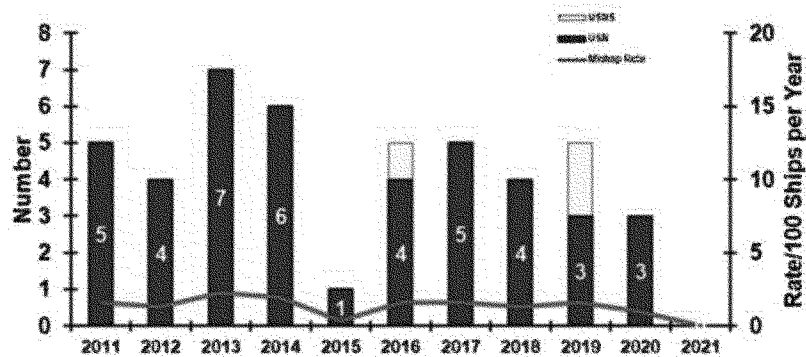


Figure 2. Navy Surface Force Class A Mishaps (Afloat)

Surface Force Safety Update

The Surface Force overall mishap rate is also trending down, benefitting from increased reporting of lower-level events and near misses to raise risk awareness. Between 2011 and today, surface force hazard reports (HAZREP) and lessons learned annual submissions have increased from 108 annually in 2011 to six times that number in 2020. This increase in risk

awareness is having a positive impact on the surface community's safety culture. Additionally, the surface fleet has developed and implemented key safety initiatives to address better crew coordination, improve decision-making and better manage crew fatigue to include:

Afloat Bridge Resource Management Workshop (ABRMW): ABRMWs are underway events where senior community leaders train ship leadership from theory to practice on operational safety fundamentals, and observe how Commanding Officers make day-to-day risk decisions. Since 2018, ships that completed ABRMW have had zero Class A or B mishaps.

Fire Safety Assessment (FSA): After the USS Bonhomme Richard fire, the Surface Fleet TYCOM developed and executed a no-notice/after-hours Fire Safety Assessment (FSA) program with Senior Department of the Navy civilians and post major command officers (O-6). The FSA program puts TYCOM experts on ships and provides a real-time picture of current shipboard fire-readiness across the waterfront. In an FSA, TYCOM Force Safety and Force Damage Control Assessment (DCA) leadership assesses ships in no-notice visits. Since program inception in September 2020, the Navy has identified and corrected deficiencies during 56 assessments.

Operational Safety Risk Indicator (OSRI): The mission of OSRI is to assess comprehensive safety and readiness (Man, Train, & Equip) indicators of surface ships to meet operational tasking. OSRI serves within existing command structures to facilitate effective use of resources, collaboration to achieve mission effectiveness, and streamline decision-making. The goal of OSRI is to provide: (1) Consistent cross-stakeholder information flow by working from the bottom-up and horizontally to avoid stove-piped information; (2) Improved process discipline; (3) Integrated, consistent, and hierarchical metrics; (4) Full transparency of data, information, and activities; (5) Data-informed recommendations for risk mitigation,

including re-apportionment of resources, recommended intervention points, and key actions; and (6) Integrated and effective governance of data collection/maintenance, data analysis, and data sharing to work across different commands, sustain operations, and develop new predictive models as new information and methods are introduced.

Submarine Force Safety Update

Mishap Rates - Improving: From 1980 to 2010 our submarine force averaged approximately three collisions, allisions (striking a stationary or non-moving object), and/or groundings per year. From 2011 to 2020, they averaged less than one per year, and in 2020, there were zero collisions and/or groundings.

Learning from “Near Miss” Events: The Submarine Force uses an innovative, near miss analysis approach to improve safety across the fleet that includes: (1) Leveraging a Windows-based “singular reporting” structure; (2) Analysis of near misses and near miss trends; (3) Providing near miss briefs to Flag leadership, staffs, and operational units; (4) Tracking briefing outcomes through a rigorous Force Improvement process. The trends are analyzed, briefed to leadership, and shared with all submarines and support staffs.

Conclusion

The intensified nature of the military competitive environment drives the Navy to aggressively improve status quo practices and behaviors in order to remain the most ready and lethal Navy in the world. We are working hard to identify and attack mishap drivers and root causes, to instill a strong culture of near miss reporting and learning, and to implement disciplined approaches to measure performance, identify precursor events, and correct off-track performance. I look forward to the continued partnership with this committee to continuously

improve readiness and keep our Sailors safe, and to ensure our Navy is properly and predictably resourced, manned, trained and equipped to answer the nation's call.

Admiral William Lescher
Vice Chief of Naval Operations

Adm. Bill Lescher is a native of Highland Park, Illinois. He holds systems and aeronautical engineering degrees from the Naval Academy and Naval Postgraduate School, respectively, and a Master of Business Administration degree from the Harvard Business School.

Lescher commanded the Vipers of Helicopter Anti-Submarine Light (HSL) Squadron-48, the Airwolves of HSL-40 and the Atlantic Fleet Helicopter Maritime Strike Wing. Between command of the Vipers and Airwolves, he was the executive officer of Mine Countermeasures Command and Control Ship USS Inchon (MCS 12).

As a flag officer, he commanded Expeditionary Strike Group 5 and Task Forces 51/59 in Bahrain, leading multiple Amphibious Ready Groups, Marine Expeditionary Units and the afloat forward staging base USS Ponce (AFSB(I)-15) in execution of contingency response and counter-terrorism missions spanning the Middle East/Central Command region.

Lescher's initial operational tours were with the Lamplighters and Swampfoxes of HSL-36 and 44, deploying primarily to the Middle East region aboard USS O'Bannon (DD 987), USS Clark (FFG 11), USS Capodanno (FF 1093) and USS Elrod (FFG 55).

Ashore, his assignments included leading the SH-60B Seahawk developmental test team as an engineering test pilot at the Naval Air Warfare Center, where he launched the first guided missiles from a Navy helicopter. His staff assignments include resource, acquisition and strategy assignments on the staffs of the Chief of Naval Operations, Secretary of the Navy, Secretary of Defense and the Joint Staff. As a flag officer, he served as the Joint Staff deputy director for resources and acquisition, deputy assistant Secretary of the Navy for budget, and Deputy Chief of Naval Operations for integration of capabilities and resources.

Lescher graduated with distinction from fixed wing, rotary wing and Naval Test Pilot School training. He has been recognized as the Association of Naval Aviation's HSL Pilot of the Year, the Naval Helicopter Association's Regional Pilot of the Year and the Naval Air Warfare Center's Rotary Wing Test Pilot of the Year. The units in which he has served have earned the Joint Meritorious Unit Award, Navy Unit Commendation, Navy Meritorious Unit Commendation, Navy "E" Ribbons and Theodore Ellyson award.

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

STATEMENT OF

GENERAL DAVID W. ALLVIN

AIR FORCE VICE CHIEF OF STAFF

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE SUBCOMMITTEE ON READINESS

ON LEARNING FROM AND PREVENTING FUTURE TRAINING MISHAPS

MARCH 23, 2021

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINES

INTRODUCTION

Chairman Garamendi, Ranking Member Lamborn and distinguished members of the subcommittee, on behalf of Acting Secretary of the Air Force, the Honorable John P. Roth, and the Chief of Staff of the Air Force, General Charles Q. Brown, Jr., thank you for the opportunity to provide an update on this important issue and for your continued support and advocacy of our most important resource – our Airmen. We remain committed to ensuring those Airmen entrusted to our care are provided as safe and effective a training environment as possible while we prepare them to fly, fight – and win – in the most competitive landscape seen in generations.

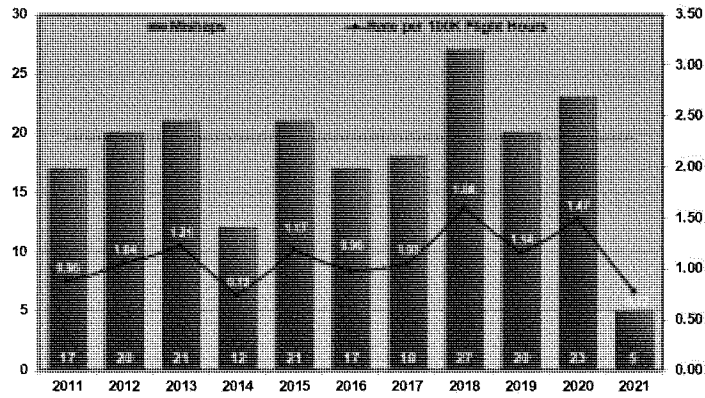
MISHAP SUMMARY

Since the last safety-focused briefing to this subcommittee in June 2018, the Air Force has had over 1,200 Class C or higher aviation mishaps, including 10 which resulted in the tragic loss of an Airman during training. While our current manned aviation Class A mishap rate per flight hour is 47% lower than FY18 and the overall aviation fatality rate is down 41% in FY21 compared to FY18, we recognize that one avoidable mishap is still too many.

Since 2018, we also had two ground Class A training fatalities, both of which were Airmen from our Special Warfare community. While we do not believe we have a systemic issue in ground safety, we nevertheless remain closely engaged with our sister services to ensure we fully understand and can leverage their lessons learned, mitigation efforts, and best practices to help prevent unfortunate events such as tactical vehicle rollovers.



Class A Mishaps: Manned Aviation

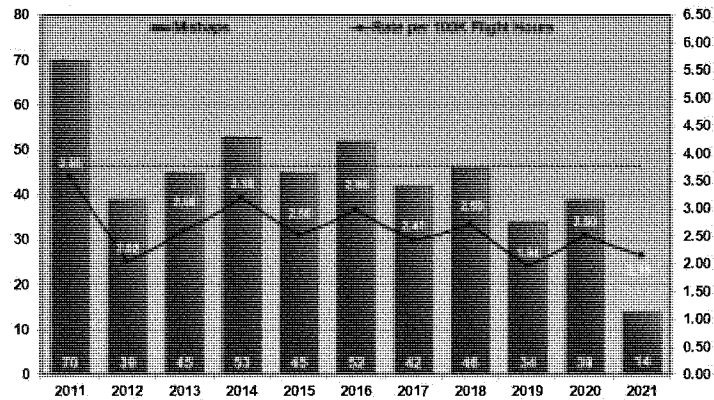


CAO: 2 Mar 21

Integrity - Service - Excellence

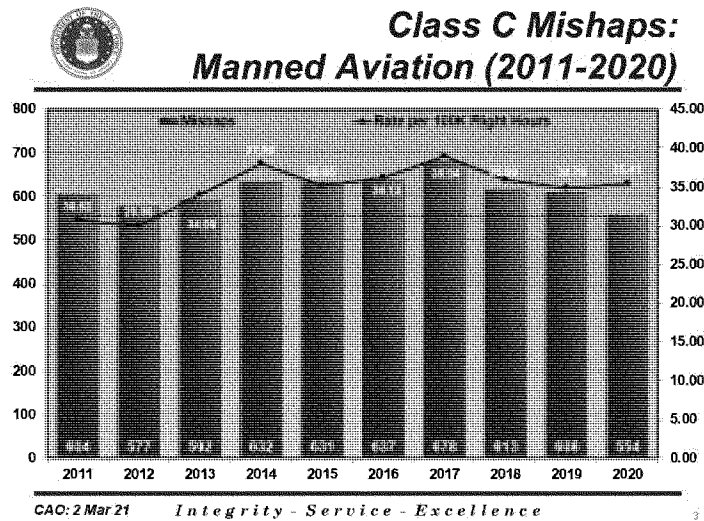


Class B Mishaps: Manned Aviation



CAO: 2 Mar 21

Integrity - Service - Excellence



SAFETY ASSESSMENT AND MISHAP PREVENTION PROCESS

Our goal is to prevent mishaps before they occur. From stepping into their first jet at Undergraduate Pilot Training to gaining proficiency once assigned to operational units, we recognize there is inherent risk in Air Force training. We view it as our duty to understand these risks and to establish the right safeguards to mitigate them wherever possible. Our risk mitigation and safety processes are designed with proactive mishap identification and prevention at their core.

Training is a career-long affair for our aircrew. Consequently, our safety system applies to Airmen throughout their full continuum of service from the schoolhouse to the operational unit. All levels of command maintain a safety focus, and as with any aviation mishap that occurs in the Air Force, we fully investigate all training mishaps to determine the root cause and to develop recommendations to prevent similar occurrences in the future, whether it involves an

initial student or a fully-qualified mission crewmember. These recommendations have led to adjustments, such as the elimination of unnecessary training events that operational units no longer require. They also often result in modifications to aircraft, such as the installation of the Automatic Ground Collision Avoidance System (Auto GCAS) in many of our current fighters, which was developed due to recommendations from several past fatal mishaps in legacy fighters caused by an incapacitated pilot. To date, we have had 11 confirmed Auto GCAS “saves” with the F-16 and F-22.

Additionally, we proactively employ a range of safety programs in our commands to identify and mitigate hazards well before a mishap occurs. These include the Military Flight Operations Quality Assurance program, an aircraft performance data monitoring and analysis system similar to the one used in commercial industry, and the Airman Safety Action Program, a system that allows any Airman to confidentially identify hazards across the Air Force to encourage more reporting. These systemic measures are augmented by unit safety culture assessments and targeted safety reviews to help identify specific hazards for our commanders. Proactively gathering the right information so our commanders can take proper actions before a mishap occurs is always our goal.

We strive to prevent mishaps, but when they do occur we are committed to learning how to prevent similar occurrences in the future. The Air Force has robust post-mishap analysis programs that include assignment of trained safety officers to investigate every reportable mishap. Recommendations from all Safety Investigation Boards are managed by Hazard Review Boards at every command. Investigation recommendations are always managed until closure. This process is designed to provide robust oversight of all safety incidents and ensure we are promoting the culture and processes that allow us to fully capitalize on lessons learned.

OPPORTUNITIES TO IMPROVE AIR FORCE SAFETY

The recently released December 2020 National Commission on Military Aviation Safety (NCMAS) report identifies several key recommendations that we believe provide ripe opportunities to create safer training and operational environments for our aircrew. This report is consistent with findings from the Air Force's 2018 Operational Safety Review – a Chief of Staff of the Air Force-directed one-day safety stand-down for all operations and maintenance personnel to assess the status of our safety programs. We have already begun implementing many of these recommendations and are currently collaborating with both the Office of the Secretary of Defense and our sister services to fully capitalize on the Commission's insights. Key recommendations are as follows:

Sustain Investment in the Flying Hour Program

The Commission rightfully highlighted sufficient flight time as “the lifeblood of military aviation safety and readiness,” with studies demonstrating a direct relationship between career flight hours and increased pilot mishap causal factors. We share the Commission's view and see sustained investment in the flying hour program and its supporting activities as absolutely necessary to ensure aviation safety and readiness; however, we would note that the specific NCMAS recommendation to fund flying hours to FY10 levels which would represent a 10% increase over FY21 levels is not currently executable. The Air Force's 2021 aircraft inventory and end-strength are not the same as 2010. We do not possess the same number/type of aircraft and the associated maintenance personnel. We would be unable to execute a program 10% percent larger than the current flying hour program with today's force structure and global commitments. Additionally, the flying hour program has experienced under execution from

FY18 to FY20. To minimize the discrepancy between flying hours programmed and actual execution, the Air Force conducted an Executability Study to inform the budget and to optimize the flying hour program.

The Air Force continues to carefully manage the execution of the flying hour program and look for additional opportunities to maximize its utilization of the flying hours programmed within the budget and within the bounds of available aircrew and aircraft. Our most significant limitations to growing the flying hour program are enduring overseas commitments, protracted maintenance on legacy airframes, diversion of aircraft into modernization pipelines, and shortfalls in maintenance manning – all of which reduce aircraft availability with which to train.

Reinforce the Aviation Supply System

Securing flying hours to maintain aircrew proficiency is only effective if the Air Force has aircraft available to fly. The Commission rightfully highlights that systemic strains in aviation supply systems “creates aircraft availability issues that hinder pilots from getting their required flight hours.” It noted endemic challenges of supply chain visibility, erosion of the industrial base to support sustainment of legacy aircraft, and parts reliability as driving the constant need for cannibalization of other aircraft, forced use of shortcuts, and fielding aircraft with numerous deferred parts.

The Air Force has embarked on a number of initiatives to improve supply chain performance and resiliency as well as maintenance effectiveness to drive higher aircraft availability rates. For example, we have fundamentally changed how we procure spare parts to improve our cash flow that allows us to increase the depth of inventory for parts that do not fail often but cause significant down time when they do. We have established consortiums to allow

vendors who normally would not contract with the Air Force become suppliers, reducing the number of sole/single source suppliers and improving supply chain resilience.

The Air Force has also leaned forward to bring maintenance best practices from the commercial sector to bear on our flight lines, capitalizing on theory of constraints and predictive maintenance to enhance our repair processes and turn unscheduled maintenance into scheduled maintenance, improving efficiency and effectiveness. We further continue to push the envelope on advanced manufacturing techniques at depots and flight lines to increase our supply responsiveness to maintenance needs. Finally, we spend over \$2.5B per year on sustaining engineering, essentially redesigning parts for better reliability and maintainability, which ultimately reduces demand for spare parts when they fail less frequently.

Provide the Aviation Community More Bandwidth to Train

The Commission highlighted that many of our Airmen serve in “a chronic state of fatigue,” due to long-term enduring combat taskings, lack of commensurate force structure, and growing requirements to train to meet next generation threats, which directly impacts safety. Moreover, the Commission found that “forcing aviators and maintainers to undertake additional administrative duties interrupt their primary aviation tasks and contribute to fatigue and burnout.” These collateral duties come at the cost of bandwidth required to focus on maintaining the proficiency required to operate safely.

These findings are consistent with our own internal analysis and reflect the broad sentiments of our operational units. Over the last several years, we have placed significant focus on reducing administrative tasks and ancillary training for our personnel, especially aircrew, to give them more time to focus on mission-related training and upgrades. As an example, from

2016 to 2020, we added over 1,800 administrative support personnel to our squadrons and eliminated 46 additional duties to increase the time available for aircrew and maintenance personnel to focus on their mission. We continue to monitor this critical population and look for opportunities to optimize their limited bandwidth to those tasks that most directly improve combat readiness, proficiency, and safety.

Expand Access to High Quality Simulators

While quantity of training is important, so is quality. One key mechanism we have at our disposal to increase the quality of training is the use of modern flight and maintenance simulators. We strongly concur with the Commission's observation that while modern simulators are "effective mediums for teaching core skills, enhancing mission techniques, practicing emergency procedures, and providing orientation to specialized operational skills," they are "a supplement or enhancement, not a replacement, for actual flight training." The Commission found that while useful, much of the simulation ecosystem remained inadequate and in some cases, created negative training. Outdated and out-of-service simulators, particularly for legacy aircraft, were highlighted as a key issue that should be addressed.

Internal Air Force reviews noted similar concerns, recognizing that many legacy simulators run on now-obsolete operating platforms with some requiring unsupported hardware to operate. These simulators no longer meet the needs of our force which must train to operate in increasingly complex threat environments. The Air Force is currently pursuing mitigation options including migrating weapon systems to a common platform that will ease maintenance, concurrency, and cybersecurity concerns. Additionally, the Air Force has initiated a program for

a common synthetic training environment to replace the proprietary, stove-piped, legacy environments with an environment accessible to all weapon systems.

We are also testing virtual, augmented, and mixed reality technologies both in our undergraduate pilot and maintenance training pipelines. This technology differs from traditional approaches in that it enables students a much more immersive training experience, which significantly increases the quality of their training. Moreover, because students require less direct instructor support, they are able to more readily tailor their training to address their unique gaps and work asynchronously, accelerating the training process. We are exploring opportunities to scale the use of this technology as part of our broader training strategy and are committed to doing so with a keen eye toward flying safety risk.

Retain Seasoned Operators to Grow the Next Generation

Finally, we would offer that one of the most valuable safeguards against mishaps remains the strong presence of seasoned aviation professionals in our line units. While the Services' challenges in retaining seasoned aircrew before the onset of COVID-19 is generally well understood, it is important to also acknowledge the significant challenges in retaining experienced maintainers as well. The Commission is correct to note that the "steady declines in maintainer experience negatively affect readiness and safety," and draw attention to the decrease of more than 50 percent in average years of experience for 5-levels which serve as the Air Force's first-line trainers and leaders.

The Air Force is leveraging a mix of tools to retain as much seasoned talent as we can, particularly during this critical time as we increase accessions of new pilots and maintainers to right size the force. We continue to target production of 1,500 new pilots per year by FY24 and

since FY17, have added over 4,000 maintainers to our operational units. We are also looking hard at creative ways to utilize the manpower we do have more efficiently, including merging several maintainer sub-disciplines to create a more agile workforce that is able to meet sortie demand with less manpower.

CLOSING

In closing, let me reiterate that preventing mishaps remains a top priority for our Air Force. The Air Force has made significant strides in reducing training mishaps over recent decades; however, we understand this is an on-going endeavor, and we must continually address emerging hazards with new training programs and aircraft. As discussed, we are undergoing a review of our aviation training syllabus to ensure we have the most effective and safest training possible. We know that risk is inherent in our aviation training and we must continue to proactively identify and then eliminate or mitigate hazards to the fullest extent.

Thank you for your time. We look forward to working with this sub-committee and our Joint partners to deliver the safe and effective training environment our Airmen deserve.

General David W. Allvin

Gen. David W. Allvin is the Vice Chief of Staff of the U.S. Air Force, Arlington, Virginia. As Vice Chief, he presides over the Air Staff and serves as a member of the Joint Chiefs of Staff Requirements Oversight Council and Deputy Advisory Working Group. He assists the Chief of Staff with organizing, training and equipping of 689,000 active-duty, Guard, Reserve and civilian forces serving in the United States and overseas.

Gen. Allvin graduated from the U.S. Air Force Academy in 1986. He has commanded at the squadron and wing levels, including the 97th Air Mobility Wing, Altus Air Force Base, Oklahoma. He has held major command staff assignments and served on the Joint Staff.

Gen. Allvin served as Commanding General, NATO Air Training Command – Afghanistan; Commander, 438th Air Expeditionary Wing, Kabul, Afghanistan; Commander, 618th Air and Space Operations Center; Director, Strategy, Concepts and Assessments; Deputy Chief of Staff for Strategic Plans and Requirements, Headquarters, U.S. Air Force and Director, Strategy, Plans and Policy, Headquarters U.S. European Command; and as Vice Director, Strategy, Plans and Policy, the Joint Staff. Prior to his current assignment, he was Director for Strategy, Plans, and Policy, J-5, Joint Staff.

Gen. Allvin is a command pilot with more than 4,600 hours in more than 30 aircraft models, including 800 flight test hours.

EDUCATION

1986 Bachelor of Science, Astronautical Engineering, U.S. Air Force Academy, Colorado Springs, Colo.
 1989 Master of Science, Management, Troy State University, Troy, Ala.
 1992 Distinguished Graduate, Squadron Officer School, Maxwell Air Force Base, Ala.
 1998 Distinguished Graduate, Air Command and Staff College, Maxwell AFB, Ala.
 1999 Master of Airpower Art and Science, School of Advanced Airpower Studies, Maxwell AFB, Ala.
 2000 Air War College, Maxwell AFB, Ala., by correspondence
 2004 Distinguished Graduate, Master of Science, National Security Strategy, National War College, Fort Lesley J. McNair, Washington, D.C.
 2006 Executive Leadership Seminar, Smeal Business College, Pennsylvania State University, College Park
 2008 Program for Senior Managers in National Security, The George Washington University, Washington, D.C.
 2008 Air Force Enterprise Leadership Seminar, University of North Carolina, Chapel Hill
 2009 Program for Senior Executive Fellows, John F. Kennedy School of Government, Harvard University, Cambridge, Mass.
 2010 Fellow, Council on Foreign Relations, New York City, N.Y.
 2013 Combined Force Air Component Commander Course, Maxwell AFB, Ala.
 2014 Joint Flag Officer Warfighting Course, Maxwell AFB, Ala.
 2020 Leadership at the Peak, Center for Creative Leadership, Colorado Springs, Colo.

ASSIGNMENTS

June 1986–August 1987, Student, Undergraduate Pilot Training, 82nd Student Squadron, Williams Air Force Base, Ariz.
 November 1987–August 1990, C-12F Copilot, Aircraft Commander, Instructor Pilot and Flight Examiner, 58th Military Airlift Squadron, Ramstein Air Base, Germany
 August 1990–June 1993, C-141B Copilot, Aircraft Commander, Instructor Pilot and Flight Examiner, 36th Military Airlift Squadron, McChord AFB, Wash.
 June 1993–June 1994, Student, U.S. Air Force Test Pilot School, Edwards AFB, Calif.
 June 1994–July 1997, C-17 Globemaster III and C-130J Super Hercules Experimental Test Pilot, Flight Commander, Flight Examiner and Assistant Operations Officer, 418th Flight Test Squadron, Edwards AFB, Calif.
 August 1997–June 1998, Student, Air Command and Staff College, Maxwell AFB, Ala.
 July 1998–June 1999, Student, School of Advanced Airpower Studies, Maxwell AFB, Ala.

June 1999–April 2001, Assistant Chief, Commander's Action Group, Headquarters Air Mobility Command, Scott AFB, Ill.
 April 2001–June 2003, Commander, 905th Air Refueling Squadron, Grand Forks AFB, N.D.
 June 2003–June 2004, Student, National War College, Fort Lesley J. McNair, Washington, D.C.
 June 2004–June 2005, Chief, Organizational Policy Branch, Policy Division, Joint Staff, the Pentagon, Arlington, Va.
 June 2005–April 2006, Special Assistant to the Director, Joint Staff, the Pentagon, Arlington, Va.
 May 2006–July 2007, Vice Commander, 12th Flying Training Wing, Randolph AFB, Texas
 August 2007–July 2009, Commander, 97th Air Mobility Wing, Altus AFB, Okla.
 August 2009–August 2010, Senior Air Force Fellow, Council on Foreign Relations, New York City, N.Y.
 September 2010–August 2011, Commanding General, NATO Air Training Command - Afghanistan, NATO Training Mission-Afghanistan/Combined Security Transition Command-Afghanistan, and Commander, 438th Air Expeditionary Wing, Kabul, Afghanistan
 September 2011–April 2012, Vice Commander, 618th Tanker Airlift Control Center, Scott AFB, Ill.
 April 2012–June 2013, Commander, 618th Air and Space Operations Center (Tanker Airlift Control Center), Scott AFB, Ill.
 June 2013–September 2014, Director, Air Force Strategic Planning, Deputy Chief of Staff for Strategic Plans and Programs, Headquarters U.S. Air Force, the Pentagon, Arlington, Va.
 October 2014–August 2015, Director, Strategy, Concepts, and Assessments, Deputy Chief of Staff for Strategic Plans and Requirements, Headquarters U.S. Air Force, the Pentagon, Arlington, Va.
 August 2015–July 2018, Director, Strategy and Policy, Headquarters U.S. European Command, Stuttgart-Vaihingen, Germany
 August 2018–January 2019, Vice Director, Strategy, Plans, and Policy (J-5), Joint Staff, the Pentagon, Arlington, Va.
 January 2019–November 2020, Director for Strategy, Plans, and Policy, J-5, Joint Staff; and Senior Member, United States Delegation to the United Nations Military Staff Committee, the Pentagon, Arlington, Va.
 November 2020–present, Vice Chief of Staff of the U.S. Air Force, the Pentagon, Arlington, Va.

SUMMARY OF JOINT ASSIGNMENTS

June 2004–June 2005, Chief, Organizational Policy Branch, Policy Division, Joint Staff, the Pentagon, Arlington, Va., as a lieutenant colonel then
 June 2005–April 2006, Special Assistant to the Director, Joint Staff, the Pentagon, Arlington, Va., as a colonel
 September 2010–August 2011, Commanding General, NATO Air Training Command - Afghanistan, NATO Training Mission-Afghanistan/Combined Security Transition Command-Afghanistan, and Commander, 438th Air Expeditionary Wing, Kabul, Afghanistan, as a brigadier general
 August 2015–July 2018, Director, Strategy and Policy, Headquarters U.S. European Command, Stuttgart-Vaihingen, Germany, as a major general
 August 2018–January 2019, Vice Director, Strategy, Plans, and Policy (J-5), Joint Staff, the Pentagon, Arlington, Va., as a major general
 January 2019–November 2020, Director for Strategy, Plans, and Policy, J-5, Joint Staff; and Senior Member, United States Delegation to the United Nations Military Staff Committee, the Pentagon, Arlington, Va., as a lieutenant general

FLIGHT INFORMATION

Rating: command pilot
 Flight hours: more than 4,600
 Aircraft flown: C-12F, C-141A/B, KC-135R/T, C-17, C-130, C-130J, C-23, F-15, F-16 and T-38

MAJOR AWARDS AND DECORATIONS

Defense Distinguished Service Medal
 Defense Superior Service Medal with two oak leaf clusters
 Legion of Merit with oak leaf cluster
 Bronze Star Medal
 Meritorious Service Medal with two oak leaf clusters
 Air Medal with oak leaf cluster
 Aerial Achievement Medal with oak leaf cluster

Joint Service Commendation Medal
 Air Force Commendation Medal with two oak leaf clusters
 NATO Meritorious Service Medal
 Non-Article 5 NATO Medal (International Security Assistance Force)

PUBLICATIONS

“Paradigm Lost: Rethinking Theater Airlift to Support the Army After Next,” Cadre Papers, Sept. 9, 2000

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 28, 1986
 First Lieutenant May 28, 1988
 Captain May 28, 1990
 Major Aug. 1, 1996
 Lieutenant Colonel May 1, 2000
 Colonel July 1, 2005
 Brigadier General Sept. 2, 2010
 Major General July 26, 2013
 Lieutenant General Jan. 31, 2019
 General Nov. 12, 2020

(Current as of November 2020)

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

STATEMENT OF

GENERAL GARY L. THOMAS

ASSISTANT COMMANDANT OF THE MARINE CORPS

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE SUBCOMMITTEE ON READINESS

ON LEARNING FROM AND PREVENTING FUTURE TRAINING MISHAPS

23 MARCH 2021

NOT FOR PUBLICATION
UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

Chairman Garamendi, Ranking Member Lamborn, and distinguished members of the House Armed Services Subcommittee on Readiness, I appreciate the opportunity to testify on the issue of learning from and preventing future training mishaps. As the Commandant stated in his planning guidance, the Marine Corps is a Naval expeditionary force-in-readiness, and that readiness is a strategic warfighting advantage for the Nation. In order to maintain that strategic advantage, we must be able to train to and operate in austere environments at sea, in the air, and ashore without unnecessary sacrifices of personnel and equipment.

Over the past several years, the Marine Corps has diligently worked to reduce training mishaps. We have taken an institutional approach to improving safety performance, including a new standards-focused Safety Management System, better reporting and information sharing tools, and service-wide changes based on investigation findings. While we have made significant progress, there is still much work to do. Ensuring institutional change occurs and lasts is my personal priority.

Leadership remains the bedrock of Marine Corps initiatives to improve safety culture, reduce mishaps, and increase readiness. Based on reviews of investigations and mishap reports, we find that a large number of mishaps involved Marines choosing to take unnecessary risks or deviating from established operating procedures. In many cases, Marines were exhibiting one of the strongest aspects of Marine Corps culture—a “can-do” attitude. This attitude helps us win our Nation’s battles, but it can also lead to preventable mishaps. By leaders emphasizing that there is a right way to do things, what the right way is, and the importance of choosing to do things the right way every time, we are reinforcing the positive aspects of our culture with a commitment to consistently meeting high standards. Active leadership, using lessons learned and the resources detailed in this statement, is the key to reducing mishaps. We appreciate your

support and oversight as we improve our safety performance and advance the lethality of the Nation's Naval expeditionary force-in-readiness.

This statement will update the subcommittee on our aviation and ground training mishap trends, as well as Marine Corps initiatives to improve our safety performance. Additionally, this statement discusses our responses to two significant mishaps: the December 2018 mid-air collision of an F/A-18D Hornet and a KC-130J Super Hercules, and the July 2020 sinking of an Assault Amphibious Vehicle (AAV). The Marine Corps recognizes the selfless service and sacrifice of the Marines and Sailor that died in these two mishaps. We are committed to honoring their memories by learning lessons from these mishaps and ensuring meaningful and lasting change.

AVIATION TRAINING MISHAPS

Mishaps Trends and Improvements

The Marine Corps recognizes that our aviation mishap rates over the past ten years are a cause for concern. As reflected in the National Commission on Military Aviation Safety (NCMAS) Report to the President and Congress, our Class A aviation mishap rate was the highest of all services from FY11-FY18. We concur with the NCMAS report statement that readiness is inextricably tied to safe operations and we appreciate the opportunity to use their assessment to continue improving Marine Aviation.

While there is still work to do to improve our safety practices and prevent mishaps, the Marine Corps' Class A aviation mishap rate has significantly declined since the end of the NCMAS report period in 2018. FY19-FY20 was our best two-year period for Class A aviation mishaps on record. In FY20, the Marine Corps had a Class A flight mishap rate of 0.93 mishaps per 100,000 flight hours, compared to a rate of 4.32 mishaps in FY17. Our Class B rate has held steady at 2.32, and our Class C rate of 8.82 is below our five-year average rate of 9.46. The loss

of life caused by the December 2018 mid-air collision between an F/A-18D Hornet and a KC-130J Super Hercules, discussed later in this statement, required us to look closely at our safety culture and practices. As a result, significant changes are underway. We are committed to sustaining these positive trends and more effectively managing the many inherent risks our Marines face every day.

Several recent Marine Corps initiatives are in line with NCMAS recommendations regarding materiel readiness, flight hours, retention incentives, and operational tempo. With the help of Congress, we increased funding to aviation readiness enabler accounts each year starting in FY17 to facilitate materiel readiness recovery efforts and flight hour generation. Our investments are displaying returns, with FY20 fleet squadron aircraft mission capable rates up 9.8 percentage points from FY17 values. This equates to 50 more flyable aircraft on any given day. Of particular note, our materiel readiness increased despite COVID-19. This is directly attributable to increased Congressional funding targeted at key readiness enabler accounts in previous FYs. Further, we have increased our hours per pilot per month from only 13.5 in FY16 to 17.2 in FY19. COVID-19 impacts in FY20, including advanced and joint-level exercise cancellations, resulted in 15 percent fewer executed flight hours than the previous year. Through increased simulator use and prioritization of unit-level core and mission skill proficiency qualifications, we prevented a decrease in aggregate training levels. However, exercise cancellations cost us the ability to train for our most critical flight leadership and capability qualifications, as well as the integrated and joint exercises that are essential for building a lethal combined arms force. Our return to large-scale exercises in FY21, increasing aircraft mission capable rates, and continually refined COVID-19 mitigation practices will help generate the increased flight hours and training that will ensure our readiness to face future threats. We also

continue to offer bonus pay to both maintainers and pilots to incentivize retention of our best Marines, and have adjusted operational tempo in accordance with National Defense Strategy priorities to improve unit readiness.

Another NCMAS area in which the Marine Corps has made significant improvements is in hazard and mishap reporting ability and information sharing. In April 2018, we fielded the Aviation Safety Awareness Program (ASAP) to all aviation units. ASAP allows individuals to anonymously report hazards directly to their safety officer and commanding officer, who can then take action and provide feedback on the reported hazard. Additionally, ASAP also affords individuals the ability to submit comments on the command climate of the unit, providing valuable and timely information to the commander on problem areas. Since its fielding, we have received over 6,600 ASAP reports that contained actionable information for safety improvements. In October 2020, we completed a seven-year effort to create the Marine Corps Safety Management System (SMS), which consolidated 18 policy documents into a single systems-based approach to safety. The SMS, modeled on the Federal Aviation Administration's safety management system, focuses on operational excellence through risk management. We have also recently implemented the Department of the Navy's Streamlined Incident Reporting (SIR) system for air and ground mishap reporting. SIR replaces the outdated Web-Enabled Safety System and has improved mishap information sharing through easier inputs and better search functions. The combination of SMS, ASAP, and SIR provides the structure for Marine leaders to encourage a healthy reporting culture and emphasize the importance of learning from our mistakes and near-misses.

Consolidated Disposition Authority and Institutional Actions

On December 6, 2018, the Marine Corps suffered a tragic loss when six Marines died in a midair collision between an F/A-18D and a KC-130J off the coast of Japan. The complexity of this mishap required a comprehensive review of the factors leading to the mishap. I appointed the Marine Corps' longest serving aviator as the Consolidated Disposition Authority (CDA) to conduct this review, which led to a clearer understanding of the mishap's causal factors and the institutional and organizational context surrounding it. Upon conclusion of the review, I directed 11 actions to address the CDA's 42 recommendations. These actions include improving assignment policies, and information sharing; clarifying search and rescue coordination procedures; updating publications; procuring more capable location devices; and providing clearer direction on sleep, medications, investigating officer assignments, and mishap cost assessments. We submit monthly updates on our progress to this subcommittee and we appreciate your continued feedback.

Our deepest sympathies and condolences remain with the families and friends of Corporal Daniel Baker, Major James Brophy, Staff Sergeant Maximo Flores, Lieutenant Colonel Kevin Herrmann, Captain Jahmar Resilard, and Corporal William Ross. We will continue to honor their memories, as well as those lost in other aviation mishaps, as we work to prevent future mishaps.

GROUND TRAINING MISHAPS

Mishaps Trends and Improvements

Similar to our aviation mishap rates, the Marine Corps recognizes that our historical ground training mishap rates are too high. In FY20, our 13 Class A ground on-duty mishaps slightly exceeded our five-year average of 12.8 mishaps. Our 15 FY20 Class B mishaps in this category were also slightly higher than our five-year average of 13.2 mishaps. Of note, our 227

FY20 Class C ground on-duty mishaps were significantly lower than our five-year average of 361 mishaps. Actively engaged leadership at all levels, supported by the programs discussed in this statement and a commitment to standards, are critical to reducing the unnecessary loss of life and equipment caused by these mishaps.

Tactical vehicle safety is a specific area of focus for our safety efforts. While the Marine Corps had 3 fatal tactical vehicle mishaps in FY19 and in FY20, we have had zero fatal tactical vehicle mishaps to-date in FY21. We attribute this improvement to increased emphasis on driver training and the importance of crew rest, detailed convoy planning, and the consistent application of risk management prior to movement. We appreciate the opportunity to use the forthcoming Government Accountability Office findings on tactical vehicle safety to continue to improve our performance in this area.

A vital part of a healthy safety culture is the ability and willingness of Marines to report hazards and mishaps. While we are confident that Marines report our most serious mishaps, we know that lower-level mishap reporting is less reliable. There are also “near-miss” events that, when reported, could provide critical leading indicators that help identify hazards and prevent future mishaps. Based on the successful use of ASAP in our aviation community, we are testing a ground-oriented version of ASAP—the Marine Corps Safety Awareness Program (MCSAP). Like ASAP, MCSAP enables Marines to anonymously report unsafe conditions, near-miss events, and command climate concerns directly to the unit’s safety officer and commanding officer without fear of retribution. As previously noted in this statement, we have transitioned to the Department of the Navy’s Streamlined Incident Reporting system, which enables easier and more accurate ground mishap reporting, as well as better information sharing. We are also in the process of fielding an online “mishap library,” which will enable Marines to easily access

mishap lessons learned reports for personal and unit professional development. In total, by increasing the accessibility, willingness, and visibility of mishap reporting, the Marine Corps is enabling its leaders to identify trends and mitigate risks.

The Marine Corps is actively examining additional proposals to improve our safety performance. The Executive Safety Board, comprised of general officer leadership from across the Service, meets on a semiannual basis to provide the oversight, support, and resources that enable safety performance and readiness. We are also committed to pursuing technological advancements, data analytics, and training improvements that will bolster our Marines' ability to mitigate risks and safely accomplish their missions.

AAV Mishap

On July 30, 2020, an AAV sank off the coast of San Clemente Island, California, resulting in nine deaths. This was the deadliest AAV-related mishap in Marine Corps history. Due to the ongoing command investigation process, we are unable to release further information on the mishap at this time. We will release the command investigation once we have informed the next of kin of the investigation findings. The Marine Corps is committed to understanding how this incident occurred and preventing similar tragedies in the future. The eight Marines and one Sailor who lost their lives during this incident— Private First Class Bryan Baltierra, Lance Corporal Marco Barranco, Private First Class Evan Bath, Navy Hospital Corpsman Third Class Christopher Gnem, Private First Class Jack-Ryan Ostrovsky, Lance Corporal Guillermo Perez, Corporal Wesley Rodd, Lance Corporal Chase Sweetwood, and Corporal Cesar Villanueva—will never be forgotten.

CONCLUSION

The Marine Corps remains committed to ensuring the safety of our Marines, Sailors, and civilians as we train to be the Nation's naval expeditionary force-in-readiness. As of the date of this statement, we have had zero fatalities in aviation or ground training mishaps this fiscal year. We are working to maintain this as our standard. In order to do this, we will learn from our past, use lessons learned to extend positive trends, and create lasting institutional change. These actions will ensure the Marine Corps remains most ready when the Nation is least ready.

General Gary L. Thomas
Assistant Commandant of the Marine Corps

General Gary L. Thomas is currently serving as the Assistant Commandant of the Marine Corps.

A native of Austin, Texas, he graduated from the University of Texas and was commissioned in 1984. He previously served as the Deputy Commandant for Programs and Resources.

General Thomas is a Naval Aviator and has served in several F/A-18 squadrons. He commanded VMFA-323 during Operation IRAQI FREEDOM while embarked aboard the USS CONSTELLATION (CV-64). He also commanded Marine Aviation Weapons and Tactics Squadron One (MAWTS-1), and he served as the Commanding General, 2d Marine Aircraft Wing (Forward) in Afghanistan as well as the Commanding General, 2d Marine Aircraft Wing

He has also served as Assistant Wing Commander of 2d Marine Aircraft Wing, the Assistant Deputy Commandant for Aviation, and as the Marine Corps Deputy Director of Operations.

His joint assignments include service in the Joint Staff Strategic Plans Directorate (J-5) and in the Force Structure, Resources, Assessment Directorate (J-8).

General Thomas is a graduate of the Weapons and Tactics Instructor Course, the Navy Fighter Weapons School, Air Command and Staff College, and the National War College. He holds a M.S. in National Security Strategy from National Defense University.

**WITNESS RESPONSES TO QUESTIONS ASKED DURING
THE HEARING**

MARCH 23, 2021

RESPONSE TO QUESTION SUBMITTED BY MS. STRICKLAND

General ALLVIN. During the timeframe FY2015–2020, 8% of Air Force aviation training Class A mishaps involved the Air National Guard and 5% involved the Air Force Reserve Command, with the remaining 87% of mishaps involving Active Duty organizations. Neither the Air National Guard or Air Force Reserve Command were involved in any ground Class A training mishaps during this period, with 100% of the mishaps involving Active Duty organizations.

The Air National Guard was involved in 11% of aviation Class B mishaps, 13% of ground Class B mishaps, 13% of aviation Class C mishaps, and 11% of ground Class C mishaps.

The Air Force Reserve Command was involved in 2% of aviation Class B mishaps, 5% of ground Class B mishaps, 6% of aviation Class C mishaps, and 6% of ground Class C mishaps.

Active Duty organizations were involved in 87% of aviation Class B mishaps, 82% of ground Class B mishaps, 81% of aviation Class C mishaps, and 83% of ground Class C mishaps. [See page 24.]

