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THE DEPARTMENT OF DEFENSE ORGANIC INDUSTRIAL BASE: CHALLENGES, SOLUTIONS, AND READINESS IMPACTS

HEARING

BEFORE THE

SUBCOMMITTEE ON READINESS

OF THE

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HOUSE OF REPRESENTATIVES

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HOUSE OF REPRESENTATIVES,
COMMITTEE ON ARMED SERVICES,
SUBCOMMITTEE ON READINESS,
Washington, DC, Thursday, November 21, 2019.

The subcommittee met, pursuant to call, at 9:00 a.m., in room 2118, Rayburn House Office Building, 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 morning. I would like to welcome everyone to this hearing of the subcommittee on the Department of Defense organic industrial base.

The Department of Defense organic industrial base, comprised of depots, arsenals, and shipyards, is a critical part of our national security apparatus. Its mission is to maintain, reset, and repair the platforms, equipment, and supplies of our Armed Forces. The organic industrial base must be postured to support peacetime requirements while also being agile enough to respond during a mobilization, a contingency, or an emergency.

Both of these requirements are at the crux of readiness and therefore requiring the oversight of this subcommittee. As the Department of Defense acquires new planes, ships, and vehicles, and weapons systems, and implements the National Defense Strategy, it cannot ignore the operation and support portion of the acquisition cycle and must plan strategically for the future.

This subcommittee is interested in hearing from our witnesses how the services plan to modernize the organic industrial base to ensure that it will continue to be postured to maintain these modernized systems. It is not particularly useful to go buy new stuff and forget to maintain it into the future.

If the organic industrial base cannot quickly repair weapons systems as they require maintenance, then we are doing a disservice to ourselves and to this nation. Furthermore, as we find new platforms and field new platforms, insufficient planning for operation, maintenance, and repair of these platforms is completely unacceptable.

Regarding our organic industrial base infrastructure, it is widely known that the facilities and the equipment in the industrial base is aging and, in certain locations, is in poor or failing conditions. This situation does not help the maintainers if they are required

to work in a dilapidated building with equipment made many decades ago. With that in mind, we must have a plan to prioritize the facilities, the sustainment, restoration, and modernization accounts that support the organic industrial base. And be sure that we will be watching for that and for those accounts.

To that end, I look forward to hearing from our witnesses on their plans to modernize the infrastructure, the capital equipment of the shipyards, the arsenals, and the depots. In addition to the facilities and equipment, we cannot and will not ignore the essential organic industrial base workforce. The Federal civil servants working at these locations across the globe provide unique skill sets that we cannot afford to lose. Their mission is essential. And we must make sure that we can hire and train the next generation in a timely fashion, and give them the protection and rights they deserve for their loyalty to this country.

While depot, arsenal, and shipyard hiring managers have the ability to hire different types of employees, whether it be term, temporary, or full-time Federal employees or contractors, we must continue our oversight of this workforce to make sure people are being utilized and employed appropriately. In addition, we need to ensure that the Department's senior leaders—those of you at the table—have the tools and authorities they need in order to compete with the private sector to recruit, train, retain a motivated and skilled workforce.

We, this committee, will continue to focus on readiness and invest into the organic industrial base, as it is a key contributor to military readiness. I look forward to hearing from our witnesses here today on the challenges they experience in their organic industrial base, and their lines of effort to address these challenges and ensure that the organic industrial base is postured to support the National Defense Strategy and military requirements well into this, the 21st century.

Gentlemen, we look forward to your testimony. But first, Mr. Lamborn, the ranking member.

[The prepared statement of Mr. Garamendi can be found in the Appendix on page 33.]

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

Mr. LAMBORN. Thank you, Chairman Garamendi. I would like to thank each of our witnesses for your testimony today.

The depots within our military services are essential for maintaining the complex ships, aircraft, and land systems that form the building blocks of our joint force. It is not enough for our depots to meet today's requirements. We must also posture them to remain relevant for future demand. This raises a major concern about the state of our aging infrastructure.

In an April 2019 report, the GAO [Government Accountability Office] found that although most depot facilities are rated poor on the DOD [Department of Defense] rating scale, the military services do not consistently track when facilities and equipment conditions lead to maintenance delays. GAO also found that the trend for facility condition is downward.

As the costs and complexities of major defense systems continue to evolve, we have to build capacity to support these systems. At the same time, we will continue to rely on many legacy platforms to serve well past their intended life cycles. The B–52 Stratofortress, for example, first flew in 1954 and is now estimated to fly into the 2040s.

The M1 Abrams [tank], although significantly upgraded, was designed in the 1970s and first fielded in the 1980s.

The Navy has an ambitious 20-year, $21 billion shipyard infrastructure optimization plan, and has started the process to map existing facilities to aid in design. In a recent hearing with Secretary Geurts and Vice Admiral Moore, we discussed the need for the Navy to resource this plan. We also discussed NAVSEA's [Naval Sea Systems Command's] efforts, in partnership with the fleet commanders, to level load the private shipyards and send a predictable demand signal to industry.

The Army has invested more than $1 billion over the past 10 years to upgrade its depot facilities, and estimates it will cost another $8.3 billion in military construction and modernization funds to fully recapitalize. These long-term plans require senior leader commitment and sustained resources to reach fruition.

The Air Force, Marine Corps, and NAVAIR [Naval Air Systems Command] also have long-term plans in various stages of maturity.

I look forward to learning more detail about the investments required to support these efforts.

For the Army, I look forward to a detailed discussion about the size and breakdown of the depot requirement. The committee needs better clarity if we are going to support our warfighters. The Army has nearly double the carryover work that is funded but not finished compared to the next highest service. I have some concerns but would broadly like to understand if it is an outgrowth of budget uncertainties unrelated to process issues or caused by supply chain issues.

With regards to the Air Force, Navy, and Marine Corps, I look forward to hearing about your efforts to stand up some organic maintenance capability to support the Joint Strike Fighter. We heard testimony last week from Secretary Lord and Lieutenant General Fick about F–35 sustainment, which will cost more than $1 trillion over its life cycle. They informed the committee that you are implementing some work sets to support the program. I look forward to hearing about these efforts and whether you have sufficient access to intellectual property to support this work.

The trained artisans in our workforce are the key to success or failure of the depot enterprise. The services have struggled to fill these positions, whether the root cause was funding uncertainty or the burdensome hiring process. My understanding is that we have made some significant progress, but I look forward to hearing from our witnesses about more that can be done; for instance, the 6-month cooling off period when someone leaves the military and before they can go into certain civilian work. I think that is something we should discuss. And I think we can address that in our next NDAA [National Defense Authorization Act].

Finally, I am concerned that when we extend the life of major defense systems we often pay premiums for old technology that is

less capable, dependent on a shallow bench of suppliers, relies on obsolete manufacturing processes, and is not reasonably fuel efficient. Many depots are actively involved in reverse engineering old components to address these challenges, and we would appreciate our witnesses sharing their insights.

These are tough problems, but in my view they can all be addressed if we have the discipline to plan, resource, and implement the solutions.

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

[The prepared statement of Mr. Lamborn can be found in the Appendix on page 35.]

Mr. GARAMENDI. Thank you, Ranking Member Lamborn.

I'd now like to welcome our witnesses:

Lieutenant General Duane Gamble, Deputy Chief of Staff, G–4, Department of Army. Welcome.

Vice Admiral Thomas Moore, Commander, Naval Sea [Systems] Command, Department of the Navy. Thank you for being here.

Vice Admiral Dean Peters, Naval Air Systems Command.

And Lieutenant General Donald Kirkland, Commander, U.S. Air Force Sustainment Center, [at] Air Force Materiel Command.

And Major General Joseph Shrader, Commanding General, Marine Corps Logistics Command.

Welcome, gentlemen. I will take your testimony. Lieutenant General Gamble, if you would proceed, and we will go down the line.

STATEMENT OF LTG DUANE A. GAMBLE, USA, DEPUTY CHIEF OF STAFF, DEPARTMENT OF THE ARMY

General GAMBLE. Yes, sir.

So, good morning, gentlemen. Good morning, Chairman Garamendi. Good morning, Ranking Member Lamborn, other distinguished members of the subcommittee. Thank you for this opportunity to testify today on the Army's organic industrial base or OIB.

Our Army OIB is decisive, as Ranking Member Lamborn pointed out, to our Army strategic readiness. The materiel readiness it enables is critical to ensuring our Army can provide the responsiveness, the depth, and the capability demanded of us in the National Defense Strategy. Your support enables us to maintain an OIB that generates Army readiness.

The main elements of the OIB are three: our skilled workforce, our facilities and infrastructure, and our resource workload that meets the Army's readiness requirements.

The backbone of our OIB is our skilled workforce. Our ability to hire, attract, and train new talent is essential to maintaining the viability and the output of our Army organic industrial base. The flexibility you have provided us with direct hiring authority has helped us process over 3,500—the exact number is 3,560—personnel actions in fiscal year 2019, and a total of 4,800, over 4,800 since 2017.

It has helped us reduce our hiring time from 114 days to 85 days, which allows our organic industrial base to remain competitive with our industry employers seeking the same critical skills. So, it is a competition for talent. And the authorities you have given us has enabled us to win in that competition.

Much of our organic industrial base infrastructure, as already pointed out by Representative Lamborn, is over 50 years old, and more than half were built before 1945. In order to maintain the appropriate level of readiness, we have developed the OIB Infrastructure Master Plan since the last time the Army testified before this committee. And we have developed that plan to identify and, more importantly, to prioritize our projects for our government-owned, government-operated facilities. And that plan will carry us over the next 20 years.

This plan is a forward-looking and forward-thinking solution that will keep our organic industrial base facilities and infrastructure postured and programmed to sustain Army readiness. It is also nested with our Army modernization efforts.

In addition to modernizing our government-owned and government-operated facilities, within the last 2 years we have had more than doubled investment to modernize our government-owned and contractor-operated facilities. We have prioritized facilities that are single-source suppliers, like Radford Army Ammunition Plant and Holston Army Ammunition Plant, and aligned our investment with the Futures Command cross-functional team priorities to make sure and ensure our modernized requirements carry our Army into the future.

Although it will remain a priority to modernize our facilities for the future, readiness today is as essential as ever. To meet our Army's current readiness requirements, we strategically invest resources in the highest priority and focused readiness unit requirements. We workload our depots through a delivery process that combines current materiel readiness, readiness assessments, near-term COCOM [combatant command] requirements, and we resource those priorities with focused readiness unit requirements in a workload that combines work for our Army, work for other services, and work to support foreign military sales. This combined workload serves to preserve the artisan skill sets that are critical and unique to the Army industrial base.

As we maintain current readiness and modernize for the future, we will continue to hone in on supply availability and capacity planning, and implement initiatives like our OIB Infrastructure Master Plan. Just like all our Army efforts, these efforts will require continued congressional support and oversight to be successful.

I thank each of the distinguished members of the committee for holding this hearing, and I look forward to our discussion.

[The prepared statement of General Gamble can be found in the Appendix on page 37.]

Mr. GARAMENDI. Thank you, General.

Vice Admiral Moore.

STATEMENT OF VADM THOMAS J. MOORE, USN, COMMANDER, NAVAL SEA SYSTEMS COMMAND, DEPARTMENT OF THE NAVY

Admiral MOORE. Thank you, Mr. Chairman. Chairman Garamendi, Ranking Member Lamborn, and other distinguished members of the committee, thank you for the opportunity to appear before the committee today to discuss organic industrial base issues.

This committee's support for our organic industrial base has been critical to the Navy's ability to turn the corner and restore readiness to our fleet. Recent on-time performance trends in both the public and private sectors are improving; however, challenges remain.

To address these challenges, the Navy has undertaken a multi-pronged approach focused on increasing accountability and improving productivity in both the public and private shipyards. In our four public yards we are growing the capacity of the shipyards to meet the workload demand, improving the training and productivity of the workforce, and making the needed investments in our shipyards to ensure they can support our growing needs.

The Navy is focused on several key lines of effort: growing the capacity of the shipyards to match the workload demand; improving the training of the workforce; improving the productivity of the workforce through innovation and improvements to our business processes, in both planning and execution; and making needed investments in our shipyards to ensure a 21st century shipyard to match our 21st century workforce.

The Navy's four public shipyards have seen a 25 percent increase in their planned workload since 2010. To match the growth, the Navy has increased the size of our public yards by more than 9,000 people, from 27,368 in 2010 to 36,696 employees in 2018. This growth was achieved about one year ahead of schedule, and is allowing us to stop growth in the backlog of work and begin working off that backlog earlier than planned. However, the rapid growth of the workforce has resulted in a less experienced workforce, where 50 percent have less than 5 years of experience.

To get new hires trained more efficiently, the shipyards have transformed how they train their new employees through learning centers that use both virtual learning tools and hands-on work. The net result of these learning centers at the shipyards have cut the time to create a productive worker from the time they are hired to more than 50 percent over the past 4 years.

The Navy is now in the second year of the planned 20-year, $21 billion Shipyard Infrastructure Optimization Plan [SIOP] that will fully transform shipyards originally designed and laid out to support building ships of sail and coal into 21st century shipyards dedicated to executing complex maintenance availabilities on the Navy's nuclear-powered aircraft carriers and submarines. Fully executed, SIOP will deliver required dry-dock repairs and upgrades to support both current and future classes of ships, optimize workflow within the shipyards through significant changes to the physical layout, and recapitalize obsolete capital equipment with modern machines that will dramatically increase productivity and safety.

The Government Accountability Office has recently reviewed the SIOP plan and identified opportunities for the Navy to enhance reliability, to improve cost estimating, and better define the roles and responsibilities to the shipyards. The Navy is taking steps to implement these recommendations, executing modeling and simulation efforts to inform area development plans at specific shipyards, and provide a more complete costimate for executing SIOP.

The committee's continued support for SIOP is greatly appreciated.

Mr. Chairman, the Navy fully understands that on-time delivery of ships and submarines out of maintenance availabilities is a national security imperative. The Department has taken a holistic approach to ensure both our public and private yards have the information, people, and equipment needed to maintain the world's greatest navy. The Navy will continue to work with the Congress and our industry partners to address our challenges and to efficiently maintain and modernize the Navy's growing fleet by growing the capacity and capability of the organic industrial base.

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

[The joint prepared statement of Admiral Moore and Admiral Peters can be found in the Appendix on page 43.]

Mr. GARAMENDI. Thank you, Admiral.

Admiral Peters.

STATEMENT OF VADM G. DEAN PETERS, USN, COMMANDER, NAVAL AIR SYSTEMS COMMAND, DEPARTMENT OF THE NAVY

Admiral PETERS. Mr. Chairman, Ranking Member Lamborn, distinguished members of the subcommittee, good morning, and thank you for the opportunity to discuss naval aviation readiness and the health of our organic industrial base.

NAVAIR's industrial workforce and infrastructure remain my top priority. Since my last testimony in June of 2018, naval aviation has seen modest improvements in readiness through comprehensive reforms, sponsored by naval aviation's 3-stars: the air boss, Vice Admiral Miller; the Deputy Commandant for Aviation, Lieutenant General Rudder; and myself.

We report quarterly to the Vice Chief of Naval Operations, the fleet commanders, and the Secretariat on our performance to plan that ensures transparency and provides an opportunity to share lessons across communities.

Our improvements are indicated by multiple occurrences of 80 percent mission-capable rates for Hornets, Super Hornets, and Growler aircraft, and improvements across all of our platforms. For Super Hornets specifically, we surged to 700—or, excuse me, 372 mission-capable aircraft on 30 September, after many years of averaging approximately 250 to 260 mission-capable aircraft.

Our aircraft depot lines and component repair lines are now delivering more effective and reliable products, with reduced turnaround times and significant improvements in quality.

Instead of merely completing the minimum repair spec and pushing aircraft back to the fleet with remaining maintenance, we are now accomplishing, with the fleet's partnership, the return of fully restored aircraft ready to promptly support squadron flight schedules. Foundational changes now in place at our depots include an apprenticeship program, an enterprise quality management system, and an investment strategy that targets modernization.

The next steps for naval aviation involve expanding these reforms to all of our depot lines and to our intermediate-level maintenance sites. We will also begin implementation of the infrastruc-

ture optimization plan, as detailed in the interim report delivered to Congress in April of this year.

Naval aviation leadership looks forward to working with this subcommittee and the larger Congress to achieve and sustain a ready and capable fleet. And we very much appreciate your continued support of our sailors and Marines.

I look forward to your questions.

Mr. GARAMENDI. Thank you, Admiral.

General Kirkland.

STATEMENT OF LT GEN DONALD E. KIRKLAND, USAF, COMMANDER, AIR FORCE SUSTAINMENT CENTER, AIR FORCE MATERIEL COMMAND, DEPARTMENT OF THE AIR FORCE

General KIRKLAND. Good morning, Chairman Garamendi, Ranking Member Lamborn, distinguished members of the subcommittee. Thank you for the opportunity to update you on the Air Force's organic industrial base. On behalf of our Secretary, the Honorable Barbara Barrett, and our Chief of Staff David Goldfein, thank you for your continued support and demonstrated commitment to our military and civilian airmen, families, and veterans.

As you will attest in my written statement, the United States Air Force has relied upon a strong organic industrial base to deliver air power in support of our National Defense Strategy. We are proud of the capabilities our Air Force brings to the organic industrial base. Our logistics enterprise effectively uses existing infrastructure across our three depots and two supply chain wings to provide cost-effective readiness for a range of legacy weapons systems, while posturing for the future.

Last month, at Tinker Air Force Base, we opened the first hangar of a depot campus dedicated to the KC–46 Pegasus refueling aircraft. We continue to expand F–35 Joint Strike Fighter aircraft depot and commodities maintenance at our Ogden Air Logistics Complex. And in middle Georgia, our F–35 avionics repair is expanding at Warner Robins.

Looking ahead, our team is already making preparations for depot support for the B–21 Raider and Ground Based Strategic Deterrent.

Even so, readiness and sustainment challenges driven by legacy weapons systems are complicated by an aging infrastructure footprint, a diminishing supply and manufacturing base, and a Federal workforce hiring process that is improving but not yet conducive to supporting today's environment.

As rightly directed by title 10, U.S. Code, it is a national imperative to have a robust industrial base supporting the nation's weapons systems. Without investments that ensure lethality, maintain readiness, properly fund and train our personnel, and deliver necessary infrastructure, we risk losing our advantage. To optimize our depot infrastructure over the coming years, our current and near-term 6 percent funding sources will not by themselves achieve and maintain the depot capacity and capability necessary.

Last March, the Air Force submitted to Congress an initial report on our organic industrial base infrastructure. This study made clear that even as we smartly use current investments, over the next 20 years we will need resources above current thresholds to

modernize across four major dimensions of our industrial base. As mentioned in my written statement, we have already started a second, more detailed analysis of depot infrastructure and will report out in late fiscal year 2020.

As we respond to a diminishing supply and manufacturing base to support aging fleets, we are accelerating the use of predictive analytics such as condition based maintenance-plus to minimize the time a weapons system is unavailable due to unscheduled maintenance. The Air Force Sustainment Center works closely with supported weapon systems program offices to ensure the data learned for predictive analytics are baked into supply forecasting, generating longer term efficiencies.

Regarding our civilian workforce hiring and development, we greatly benefit from the hiring tools and authorities that Congress has provided. These are necessary to stay competitive with our defense industry peers. Thank you for providing these authorities and continued support of expanding their use. In fiscal year 2019 we hired 74 percent of all hires using direct hiring authority. This is making a difference to our workforce.

In every instance or crisis, the defense organic industrial base provides solutions to meet unanticipated demands. The Air Force will need help from Congress with continued investments to meet the needs of an increasingly sophisticated and contested battlespace in the 21st century. We are making generational decisions in our depots now. The Air Force needs stable and predictable budgets to maintain and modernize our critical logistics and sustainment capabilities. Consistent funding underwrites our mandate to produce readiness that guarantees our service's ability to fly, fight, and win.

Thank you. And I look forward to your questions.

[The prepared statement of General Kirkland can be found in the Appendix on page 52.]

Mr. GARAMENDI. Thank you, General.

General Shrader.

STATEMENT OF MAJ GEN JOSEPH F. SHRADER, USMC, COMMANDING GENERAL, MARINE CORPS LOGISTICS COMMAND, HEADQUARTERS MARINE CORPS

General SHRADER. Chairman Garamendi, Ranking Member Lamborn, and distinguished members of the House Armed Services Subcommittee on Readiness, thank you for the opportunity to testify on this important topic.

Our Commandant's vision for the Marine Corps is to be manned, trained, and equipped as the world's premier naval expeditionary force in readiness, forward-postured with the Navy's fleets to deter conflict and respond to crises, and to be globally recognized as an elite corps of marines of exceptional talent.

A ready and modern organic industrial base plays a key role in achieving the Commandant's vision. Accordingly, we do have a long-term Organic Industrial Base Modernization Plan to repair, repurpose, consolidate, and construct new facilities across our depot, and tear down those facilities deemed too old and no longer relevant.

We are pursuing innovative and state-of-the-art technology, such as robotics, on our main production lines and sub-shops. Also, 3D printing and additive manufacturing to augment the supply chain and extend our operational reach.

Marine Corps Logistics Base Albany in Georgia was also recently selected to be one of the first of four DOD locations to receive 5G bandwidth capability, which will enable us to employ more capable, automated, and IT [information technology] maintenance management solutions. And of note is our base at Albany is also pursuing an aggressive goal to become a net-zero energy consumer through employing renewable and resilient technologies such as borehole thermal energy storage systems and ground-source heat pumps.

Finally, and most important, we are improving our ability to recruit, train, and retain the depots' next generation workforce.

So, again, I thank you for this opportunity to talk about the Marine Corps organic industrial base readiness, and I will look forward to your questions.

[The prepared statement of General Shrader can be found in the Appendix on page 63.]

Mr. GARAMENDI. Thank you. Gentlemen, thank you very much for your testimony. We will now do a round of questions. We will hold to the 5-minute normal rule of our committee.

Generals, each of you have developed a plan to address the concerns of the organic industrial base, modernization of it. And, presumably, that plan takes into account the new equipment that you will be receiving, for example, the Army Modernization Program, the Navy-Air Force F–35, so forth. We will be watching that very, very carefully.

At the same time, you have legacy equipment, some of which has been around for more than a few decades. We can talk about the B–52. And I am sure there are plenty of track vehicles in the Army that probably are of a similar age. So, the fundamental question of this particular hearing: Is your organic industrial base plan sufficient to take care of the past older equipment, ships, aircraft, as well as the future? That is what we are going to be looking at. And we are going to go at it in detail.

We have received from all of you over the last several—last year, your plan. And you can be assured that this committee will go into it in detail.

Now, let's start with all of you. And I want to just hear your commitment to the industrial base, to the plan that you have before us, and I put it very clearly, in the new President's budget will there be the money to support that plan?

Let's start with the Marine Corps and we will go left to right, or left to right as you may view it. General Shrader.

General SHRADER. Yes, sir. Thank you.

Sir, we submitted, the Marine Corps submitted, the Commandant submitted this past July our plan for improving the organic industrial base facilities. It is a 25-year plan. It is a $1.9 billion price tag. It is to be executed in three phases.

We are right now executing the first phase. The first phase calls for a 7-year period. And in that first 7 years we are getting after process workflows, we are also repurposing some of the facilities that we have, and we are also doing consolidation and rebuilding.

Once we get to a point where we have the capacity, then we can turn to tearing down old facilities that I talked about before.

Mr. GARAMENDI. I am going to cut it short. I am going to try to stay to 5 minutes.

General SHRADER. Yes, sir.

Mr. GARAMENDI. So maybe we will do about 1 minute each, and that will put me well past the 5-minute limit.

General SHRADER. Aye, sir. So, whether, whether we are going to fund it, sir, I think it is a risk, it is a balancing act because we are funded—the Marine Corps allocates money across all MILCON [military construction] projects, so it is a risk equation.

What I would offer, sir, last, is facility modernization is a function of equipment modernization. The more money we can put into equipment modernization, the less need for us to maintain equipment longer. So, if we are not fielding new equipment, it stretches out the life cycle of that equipment. So, we have to make sure that we can find that balance.

Mr. GARAMENDI. You shall see. Exactly.

General SHRADER. Yes, sir.

Mr. GARAMENDI. General Kirkland.

General KIRKLAND. Chairman Garamendi, thank you for that question.

Sir, you are aware the report we sent over from the Air Force back in March lays out notionally a $26 billion investment strategy over 20 years. That is phased from the near term to, if you will, catch up, and then allows to keep up while we posture for depot infrastructure of the future.

That lays out across four categories: depot equipment, technology, IT infrastructure, industrial software, facilities for overhaul and the final assembly, as well as repair nodes and hidden infrastructure. These are essential to our long-term viability.

Meanwhile, Chairman, we are making the most of the infrastructure we do have with our world-class workforce. We, to support operational customers we rely a lot on our processes right now to mitigate any challenges we have with equipment or facilities.

And in looking ahead, sir, this year we are going to do a detailed analysis that will result in a more refined 20-year strategy with an implementation plan and resulting guidance.

Mr. GARAMENDI. Excuse me, gentlemen.

General KIRKLAND. Yes, sir.

Mr. GARAMENDI. The specific question is, we know your, we have seen your plans, we know—we want to know if you have committed to carrying out that plan. In other words, will the money for the plan implementation be in the upcoming budget?

General KIRKLAND. Chairman, we are using this process to inform our choices over the next, this next planning cycle.

Mr. GARAMENDI. Okay.

General KIRKLAND. And I would expect that this process that the Air Force will go through in fiscal year 2021 form those choices through our corporate process.

Mr. GARAMENDI. For all of you, you should be getting the gist of where I am going. Happy talk. I want real commitment, meaning, are you going to put the money and the effort into carrying out the plan? Okay?

Let's continue on. Mr. Peters, Admiral.

Admiral PETERS. Thank you, Mr. Chairman. Yes, the Navy is committed to the aviation infrastructure optimization plan, $3.5 billion: $1 billion in sustainment, restoration, modernization [SRM] funding; $1 billion in capital equipment modernization; and $1.5 billion for MILCON.

I will speak to the commitment in terms of the first two. We are taking actions and have support from the Navy for the SRM funding, and also partial funding for the equipment modernization. Some of that will come through appropriated funds, some will come through our rate structure.

Thank you, sir.

Mr. GARAMENDI. Thank you.

Admiral Moore.

Admiral MOORE. Mr. Chairman, thank you. Yes, the Navy's PB20 [President's budget for fiscal year 2020] submit does support the plan. It is a good plan. It addresses both current ships that we have, and also the need to get after setting the depots up for success in the new platform that is coming down the road: *Ford*-class carriers, *Virginia*-class submarine, and *Columbia.*

But I would note this is not a one-and-done plan. We dug ourselves a readiness hole over a number of years, and one year is not going to fix this. We have to stick to the plan over the next couple years in order to be successful.

Mr. GARAMENDI. We will look at the budget and see if you are actually going to start.

General GAMBLE. Chairman, the Army is also committed to Army readiness. We recognize that legacy systems, or our enduring systems as you mentioned, are part of our Army's ability to win. The truth is that we will not modernize the entire Army. We will have legacy track systems in our Army for years to come.

Our 2020 budget includes top priorities of maintaining these enduring systems. It also includes money for industrial base modernization.

Among those systems are—we are leveraging the uniqueness of our industrial base to convert UH–60 helicopters from Lima to Victor models for the Army National Guard. That will save us money in the long term. We won't be buying new production for those systems. So we are leveraging our industrial base and resourcing our industrial base to do important work for Army readiness.

Mr. GARAMENDI. You are going to spend $1.6 billion on depot maintenance in 2020?

General GAMBLE. Our depot maintenance budget in 2020 is $2 billion, just north of $2 billion. It reflects 80 percent of our validated depot requirement. That is up from last year where I think we funded 78 percent of our requirement last year.

Mr. GARAMENDI. Thank you.

Gentlemen, you should be able by now to understand where we are going here with this committee. We are going to hold you accountable to the plan. We will first make sure the plan achieves the goal, and then we will make sure that you carry it out.

With that, I yield to Mr. Lamborn.

Mr. LAMBORN. Well, thank you, Mr. Chairman. And I want to stress that this is a bipartisan concern. I am with the chairman

100 percent on making sure that we have plans and that we are funding those plans, that it is a high enough priority to do so. And if we are not funding and making the plans and funding them properly, then it is really obviously not a priority.

I know there are many needs, many urgent needs that the big services have to deal with. But this is the future; we have to make sure that the future is taken care of.

So, I will be watching with the chairman closely to make sure that we do accomplish this. So, thank you for that.

And I would like to address the Army in particular now, partly because the depot carryover numbers are so big. According to a July 2019 GAO report, the Navy, Marine Corps, and Air Force averaged less than 6 months of carryover worth $1.0 billion, $0.2 billion, and $1.9 billion per year respectively from the period 2007 through 2018. And the Army averaged $4.3 billion of carryover during the same timeframe.

So, what can you tell me, General Gamble, about what the Army is doing to address its particular depot maintenance requirements?

General GAMBLE. Yes, sir. I appreciate your question.

With respect to the Army carryover, I think it is important to point out that the Army's system, our enterprise resource system is different from the other services. So, the Army carries with that carryover the cost of materiel. We are not, we don't have the flexibility to eliminate that. You know, we bill the whole. The entire work is billed when it is done, when it is complete.

So, when there is a supply chain issue, if there is a lot of bill of materials, that encumbers our carryover. So, our carryovers compared to the other services, while I won't argue, sir, we do have a carryover problem in the Army, it is a little out of—it is a little bit of apples and oranges. It is still carryover but I don't know that it gives you total insight by comparing our carryover to the other services.

Our carryover is down this year. It is in excess of 6 months. You know, GAO just reported on carryover. And their determination, frankly, I agree with their determination, any carryover calculation should inform, should be quality I think is the words GAO used, but I think it should be decisionable information that allows us to do something about the carryover.

And as you pointed out in your opening comments, carryover is a function of either the supply chain or our budget. I would add, probably add that forecasting is part of that carryover, too. So, what the Army is doing is General Perna, the Army Materiel commander who commands our depots, has reserved at his level taking work late in the year. Because, of course, if you take work late in the year, your ability to accomplish that work, that OMA [Operation and Maintenance, Army]-funded work in the year, starts to diminish. So, he has reserved that at his level and his executive deputy commander level, and that is making a difference.

You know, what leaders check, just like the oversight of this committee, but leaders check, people do. And he is checking. So, we have seen carryover come down in that regard.

I will offer one last comment on carryover. I believe that the carryover calculation does not lead us to those, the current carryover calculation—GAO highlights this in their report—does not

lead us to decisionable information. To some degree the carryover has been weaponized. It is a divining rod to find money to move to other programs.

I am not so sure that is a good, a good trend. I would offer that if the carryover calculation, whatever we come up with OSD [Office of the Secretary of Defense], leads us to make decisions on depot capacity, increasing or decreasing capacity, whether it is workforce or infrastructure, that that, that would be a good use for carryover.

And then my final comment, sir, is that today the carryover does help us bridge appropriations. Today at Anniston Army Depot, for example, in Congressman Rogers' district, 89 percent of the work being done today at Anniston Army Depot is carryover. The remaining 11 percent is Army Working Capital Fund work.

The amount of OMA work being done today, first quarter at our Army depots, is very, very small because of the CR [continuing resolution]. And so, units are husbanding their resources, waiting. And as the appropriation comes to fruition, that money will start infusing into the depot. But the longer that that goes on, the more, more chance that we will have carry—that will carry over in the next FY [fiscal year].

I hope I answered your question.

Mr. GARAMENDI. Okay. Ranking Member Lamborn.

Mr. LAMBORN. Well, then I will make this real fast. I will make this——

Mr. GARAMENDI. It is okay. Take your time.

Mr. LAMBORN. Please make this a yes or no answer.

General Kirkland, we talked about this the other day, but getting rid of the 180-day cooling off period, at least for GS–1 through 13, not 14 and 15, if that were to be done in the next year's NDAA—and I know there is a Senate bill also addressing this by Senator Lankford—would you, would you like to have that accomplished?

And just go down the line, yes or no.

General GAMBLE. Yes, sir.

Admiral MOORE. Yes, sir.

Mr. LAMBORN. Okay. Wait, wait. We will stop right here and I will let Austin Scott address that as well. Okay, he is kidding. Okay, let's go on down the line.

Admiral PETERS. Yes, sir. We would support.

General KIRKLAND. Yes, sir.

General SHRADER. Yes, sir.

Mr. GARAMENDI. Okay, thank you.

Mr. Chairman, I yield back.

Mr. GARAMENDI. Thank you. We need a better understanding of the carryover. I think that I know that I don't understand exactly how the Army calculates the carryover. We will get into that in more detail. We may be misunderstanding or not understanding the way in which you calculate it.

Ms. Houlahan.

Ms. HOULAHAN. Thank you, Chairman. And thank you, gentlemen, for coming. My questions are about workforce.

Congress has provided you direct hiring authority for depot work to expedite hiring, but this authority doesn't seem to have been terribly successful in filling skill gaps that we still see. Do you think it is possible or likely that the skills and workforce gaps that we

see persist in part because people with these skills are seeking to be hired full-time and not in term or temporary hire, is my first question?

And to what degree is it possible that reliance on term or temporary hires is contributing to skills gaps for an enduring workforce?

And anybody can start, please.

Admiral MOORE. Well, first of all, I would say from the Navy's perspective we are a huge fan of direct hiring authority, and it has helped me significantly in the depots. That is why we would be able to hire, you know, as many people as we have over the last couple years.

We don't use temps at the naval shipyards, so that is not an issue for me. So the hiring authority is really something that we would hope that you would keep there. And it has made a, it has made a difference.

You know, our challenge in the naval depots is, you know, we are in competition with that talent with the private sector as well on the new construction side, et cetera. Welding skills, you know, pipefitting skills, electrical skills are in competition throughout the homebuilding industry, et cetera. So anything, tools that we can have to get people in the door quicker and pay them well will help us.

So, I appreciate——

Ms. HOULAHAN. That actually was going to be my follow-up question for you. We heard from a hearing prior to this that most people have less than 5 years of experience who are working at our shipyards. And to what degree can you talk—and I will follow up on the other question—but about how we can be more competitive with the civilian economy?

Do you have any examples of places where we have been successful in marrying up with vocational or trade schools, or that sort of thing that has been helpful in being competitive?

Admiral MOORE. Yeah. That is a fantastic question. So, almost every one of my major depots is partnering with the State to have hiring fairs, have apprentice schools. Norfolk Naval Shipyard and Puget Sound Naval Shipyards specifically have apprentice schools, which is equivalent to a vocational school. They get a degree. The competition to get into those schools is extremely competitive, which tells me that people want to get in there.

And once we get people in the door and we can get them past that 5-year point, we tend to keep them for a long period of time. And so I think that the attraction of being trained and then having a good salary and a job that you know you're going to be able to have for a long period of time is very attractive. So, it has helped us in this competition with the private sector.

Ms. HOULAHAN. Would any of you other gentlemen like to comment on my, or answer my first question? Thank you, sir.

General GAMBLE. Congresswoman, the Army does use temps and terms at our depots and our ammunition plants. And so, I do agree that most people are, you know, would prefer a permanent employment over a temporary or term employment.

We found the temporary or term employment to be a good tool to expand and contract, in some cases, the workforce based on

workload. But in a more positive way it gives us the ability to identify talent, and then use the direct hiring authority this committee has given us to hire that talent.

The direct hiring authority, the first part of your question, has been absolutely decisive for the last couple years. The truth is, it took us a couple years to implement, fully implement that authority. But we hit our stride this last year, in fiscal year 2019, hiring over 3,500 people.

Ms. HOULAHAN. Is there anything that we could be doing to make it even better for you?

General GAMBLE. I think Representative Lamborn's proposal or suggestion to limit the cooling-off period would help somewhat. All the talent is not in the service, obviously. And just like the Navy, all our depots and arsenals are partnered with the local school systems, whether those are post-graduate school systems, or undergraduate systems, or secondary school systems. That represents, you know, manifests itself in internships, et cetera, at our depots.

So there are different streams of talent coming into the Army. The direct hiring authority has allowed us to be compet—remain competitive with industry.

Ms. HOULAHAN. I have about 50 seconds left. Would anybody else like to contribute?

General SHRADER. Ma'am, the Marine Corps is a, we are an advocate of the direct hire authority [DHA], and we have used it.

Regarding terms and temps, we also use that kind of a warm start. But I would offer that there is a value to permanency all its own. And so I think that a lot of folks that we are competing for, they are looking for that permanent position. But all those are tools that we look to.

A modernized depot is something that attracts our young people that come out of college. They want to work someplace that is going to have modern technology that they can apply their skills to. So it is all, this all goes hand in glove.

Ms. HOULAHAN. Sure. Understood.

I have about 7 seconds left, which is plenty; right? I would love to hear from you.

General KIRKLAND. Ma'am, I will——

Mr. GARAMENDI. Take your time.

Ms. HOULAHAN. Thank you.

General KIRKLAND. So, ma'am, particularly I will just talk for Air Force Sustainment Center. We use it at every level of our workforce. And I will highlight on the upper end for our trained engineers and software folks, which is for us a growing enterprise. We have north of 4,400 software engineers now working for our Sustainment Center.

DHA has been a tremendous tool to give them an on-the-spot job offer. And once they join, they like what they are doing, and our retention rate reflects that.

Ms. HOULAHAN. Thank you. And I actually served in the Air Force as an engineer, so I very much appreciate that comment. Thank you.

Mr. GARAMENDI. Thank you very much.

There is a whole series of questions here that we want to get into on the hiring part of it. And, undoubtedly, my colleagues will carry on with it.

Mr. Scott.

Mr. SCOTT. Thank you, Mr. Chairman.

I wasn't joking when I said Mr. Lamborn stole my question. He actually was looking at my notes.

Mr. LAMBORN. Then it is time for you to ask it.

Mr. SCOTT. He was looking at my notes and his time was expired.

The National Defense Authorization Act, hopefully we will have a piece of legislation in the next several days or weeks. There is an opportunity to resolve this issue I believe once and for all in the upcoming National Defense Authorization Act.

Some have suggested that it should apply to O–6, or the waiver should be for O–6 and below. Some of—General Kirkland, you suggested the GS–13 and below. I am indifferent which route we go. My suggestion would be that all of the services request the same thing.

So, real quick, is everybody on board with GS–13 and below? Everybody is good with GS–13 and below?

[A show of hands.]

Mr. SCOTT. I think the committee——

Mr. GARAMENDI. I think there was four hands up. And so the answer to your question is they have agreed with you.

Mr. SCOTT. Okay. And I think the majority of the committee agrees on this. So, I would hope that as the National Defense Authorization Act comes forward this is something that we can resolve.

My understanding is that this prohibition applies to full-time Guard and Reserve as well, as they retire. My question, and I will just ask you, General Kirkland, for our part-time Guard and Reserve, do we have hiring restrictions on them as well or is it only for full-time Guard and Reserve as they——

General KIRKLAND. Congressman, I would need to check on that and make sure I am giving you the right answer. I would like to take that for the record, please.

[The information referred to can be found in the Appendix on page 71.]

Mr. SCOTT. Okay. I think that is something that we, we can research as well.

And—but full-time Guard and Reserve as they approach their retirement, my understanding is the 180 days does apply to them. I am just making sure we find the right standard with regard to all of the different types of services that people have. Hopefully, that gets resolved.

General Gamble, I heard as you discussed the differing accounting methods by service, you said it makes one, one service's carryover look worse than another, another branch's carryover would look. From our standpoint, it makes it hard, harder I think for Congress to do its oversight role.

I know it would be a big move to get everybody to the same accounting standard on the carryover, but I do believe that is something that we should look at because it is hard for us to see rel-

atively who is doing better. But would the different accounting methods—and this is my specific question—with regard to the Defense Logistics Agency [DLA] for the different services, do the differing accounting methods by service create confusion at the Defense Logistics Agency?

General GAMBLE. Sir, from the Army perspective I believe not. I believe the answer is no.

The carryover calculation is the same for all the services. But our resource, our enterprise resource system drives us to not be able to bank, if you will, those, the costs. So, the cost of material rolls forward in the way our ERP [enterprise resource planning] does.

And then with respect to DLA, I think maybe the heart of your question has to do with the forecasting of the organic industrial base requirements for DLA.

Mr. SCOTT. The sourcing of parts?

General GAMBLE. Yes, sir. Forecasting our work as it translates to the supply chain that DLA is responsible for.

We believe, one, DLA gives us exquisite support but, two, we believe we have a fairly solid forecasting process with DLA for our organic industrial base workload.

I hope I answered your question, sir.

Mr. SCOTT. General Kirkland. Admiral Peters.

Admiral PETERS. Sir, if I could just say, I mentioned from the carryover standpoint there is a little bit of an artificiality here that I think is recognized that, you know, because you heard the Army experience that they are not even inducting components that need to be repaired because of this, the optic associated with carryover, we need to realize that there are components that break during the course of the year. And they are going to take longer than a few months to fix sometimes.

Mr. SCOTT. My time is expired. I guess my concern is, Admiral Peters, this is kind of what you are getting to, is the current system forced to gaming of the numbers, and which gives us a false, a false read on what is actually happening.

Gentlemen, I appreciate your service. I will yield my time.

Mr. GARAMENDI. Thank you, Mr. Scott.

The metrics by which you measure are metrics that we observe and hold you accountable for. We have always, at least in my experience, is we do question the appropriateness of the metrics and whether they actually give us the—give you and us a clear picture of how the maintenance is occurring.

Ms. Horn, you are next.

Ms. HORN. Thank you, Chairman Garamendi. And thank you to all of you for being here.

I have several questions along those same lines. And I want to start with General Kirkland because I think we are talking about a couple of things: ongoing maintenance, investing, and how we sustain current systems through the process.

So, General Kirkland, I know that Tinker has done a lot to—and I have been very impressed with the maintenance and what you have been able to do to maintain some of our legacy aircraft, the KC–135s and the B–2s. And as these, as these planes and other legacy equipment gets older there are growing issues, I know, with supplies and parts on these legacy aircraft.

So, can you speak to a couple of things: the use of predictive maintenance and how that is enabling the maintaining of these legacy systems; and the role of public/private partnerships in the organic industrial base, and how that is helping to maintain in the interim?

General KIRKLAND. Yes, ma'am. Congresswoman, thank you for the question.

So, ma'am, you highlighted Tinker. And I will just start there. With regard to diminishing supply and our parts constraints, two approaches really. First is to partner more in-depth with our industry teammates on who we rely. We do that often through the Defense Logistics Agency, who does provide fantastic support to us.

We benefit from a vehicle we are calling Captains of Industry where we have an omnibus agreement for a higher level supply support. In fact, we have one that works very well with GE [General Electric]. And we are pursuing the same relationship with other prime vendors.

Where and when we can't get the part, we often rely on reverse engineering. And there, ma'am, we are doing that across all three of our depots, in Utah, Oklahoma, and Georgia. But by and large the reverse engineering provides us a technical package which we can then manufacture the part, either organic or outsource that to commercial industry where that might make sense.

And that works really well for small batches. And we have learned can keep a part, can return a part in days or weeks instead of months or years, and get an airplane either through the depot line or out in the field and back in business. And that has been a tremendous thing.

And, ma'am, along the way then we rely heavily on process to lean out our operations there. And we are quite proud of the workforce that is doing that.

Ms. HORN. Thank you. And to follow up on that, turning to the direct hiring authority and the need to maintain the organic industrial base as a critical piece of this, I want to revisit the ability to retain the civilian workforce, and having that base for things like reverse engineering as we are going through this process and assessing how the process improvements and the incentives of being able to reverse engineer or keep people there is connected to the direct hire authority, and what else is needed.

General KIRKLAND. So, ma'am, with respect to retention, I would offer that simply by having a steady influx of trained personnel, personnel we can train in order to keep the production lines going, that has morale increase. And as we put more and more work into the same facilities and same workforces, that has a beneficial effect of keeping every employee gainfully, gainfully employed, and providing upward mobility with supervisory opportunities. And that has been our, that has been our experience.

With respect to engineers, I will just highlight that across our enterprise, our software engineers, we have an attrition about 7 to 9 percent annually. And that is right, is right there with industry. And so that is even as we grow the enterprise, about 6 percent a year.

Ms. HORN. Thank you. Would any—I have just under a minute, any of the rest of you like to speak to that?

General SHRADER. Congresswoman, I would say on the retain piece, a challenging, challenging work environment where you have the ability to innovate: 3D printing, additive manufacturing. When you go down to visit our engineers, I mean, they, they look forward to coming to work every day to work with that and get after some of the obsolescence challenges that we have and that we are getting after with 3D manufacturing.

And it is just, it all boils down to having a good environment to work in, which means modern facilities. So, that is really a big factor in retaining.

Ms. HORN. Thank you, General Shrader. Just a couple more moments, a few more seconds, any additions?

Thank you. I yield back.

Mr. GARAMENDI. Thank you. The Marine Corps and the Air Force are receiving substantial new funds to the emergency appropriations for the rebuilding of some of your facilities, not so much for the Air Force on the organic side, but the Marines most definitely. We will be looking at that, particularly Cherry Point, and how you are going to be working on that, your plans, how you will be spending that emergency appropriation money to update and rebuild that facility as a modern organic industrial base.

No response necessary, just know that we are watching.

Mr. Bergman.

Mr. BERGMAN. Thank you, Mr. Chairman. And thanks to all of you for being here.

I don't know, this is one of those questions I really don't have an answer to. Is there a percentage of your civilian workforce that is unionized? Okay. Do those unions have apprentice programs or do you have apprentice programs in place to actually, you know, we call it in some cases OJT [on-the-job training], but could you, any one of you speak to the successes you have had in apprentice programs aboard any of your facilities?

Admiral PETERS. I can start, sir. Just, we have just recently established an apprenticeship program. It is highly competitive. We started 148 of our artisans in this apprenticeship program. It is 4 years, with a 2-year payback, so that helps on the retention side also. But it also provides some cross-training opportunities. And we have had, you know, 1,000 applicants for the 148 slots that we started this year. And 168 in fiscal year 2020 is the plan.

So it has been very effective for us.

Mr. BERGMAN. And is this in conjunction with the union?

Admiral PETERS. Absolutely.

Mr. BERGMAN. Good. You know, because, you know, good unions really, really, really add value to any company or any entity. That is good to see.

Carryover funds. Let's just say what I heard here was the little tricks: if you do this, you get to that, or, you know, whatever, and there is kind of potential for gaming the system. Let's just say flat out that you got to reinvest as you saw fit any money you saved by, let's say, shortening the transition from legacy to next gen, or whatever, in that sustainment period.

In a time of limited funding, which we are in a time of limited funding when you think about all the things we, as the Federal Government, do, could you come up with a business plan that, as

Jim Collins, Good to Great, would say, stop doing the things you don't need to continue spending money on, knowing that you got to keep that money to reinvest it in other things, could you actually present to this committee or the committee as a whole on armed services where, you know, how much? Just give us a—I don't care where you do it, you just tell us, give us a dollar figure? Could you do that, I mean over time, 6 months, whatever, before we do the next NDAA?

Admiral PETERS. I will just add, sir, very quickly, we could do that. As part of our working capital funds we reinvest back into the plants. And we are committed to 6 percent. Our challenge has been meeting that 6 percent each year. But we are starting to be able to do that. Just in fiscal year 2019 we accomplished it, and going forward we intend to accomplish it also.

Mr. BERGMAN. It is, you know, again, if you were a business and you were paying your, not even your stockholders, just say your employees dividends based on their performance, and their performance, part of their performance plan was to figure out how they could do their job not only better but cut unnecessary spending where it no longer made sense. Okay. And that is, if you have that in your culture I think it would—and I am not going to speak for the committee—but to hear it from you where you can do better and allow the money to be wisely spent because you are the managers of it, that is a plus for all of us here.

So I will, Mr. Chairman, I will give you back a minute. And I yield. Thank you very much.

Mr. GARAMENDI. We appreciate the extra minute. However, the discussion you are having is an extremely important one. Part of the problem that this committee has, at least this chairman has, is that there are multiple definitions of the way in which the money flows. And certainly between the services that does exist, and within the services, carryover funds.

So, to achieve your goal we need to have a clear understanding of the accounting process, which is an ongoing issue within the Department of Defense.

Mr. BERGMAN. You are not telling me that there is tricks played with the numbers are you?

Mr. GARAMENDI. Of course I wouldn't.

Mr. BERGMAN. Okay.

Mr. GARAMENDI. Of course, the gentlemen——

Mr. BERGMAN. Well, having, having built a budget inside the military of roughly a billion dollars a year for 4 years in my senior years in uniform, I have seen—I have played both offense and defense.

Mr. GARAMENDI. Would you like to explain?

[Laughter.]

Mr. GARAMENDI. Mr. Rogers.

Mr. ROGERS. Thank you, Mr. Chairman.

About a month ago I was over at the AUSA [Association of the United States Army] convention. I try to go over there every year. And I spent several hours over there this year and I was struck by how many platforms are robotic and autonomous. And it is just across the spectrum over there.

So, General Gamble, given that you-all plan to have these autonomous and robotic platforms in your formation, and Army's Future Command is to accelerate modernization timelines, how are you going to get the depots ready to work on that stuff?

General GAMBLE. Sir, Thank you for your question.

So, we have embedded in every cross-functional team an Army logistician from Army Materiel Command specifically to have eyes and ears and to make sure that we upgrade, we modernize, and we improve or make modifications to the industrial base to keep pace with modernization.

In some cases we don't know what the modernized system looks like quite yet. But there are decision points for every program along the way so that the industrial base, the infrastructure could be modified, improved, or reconstructed, developed, or restored, or modernized through SRM [sustainment, restoration, and modernization] funding. But that is our principal way is to embed Army logisticians in the cross-functional teams.

And we also invested into Army Futures Command a former brigade commander colonel, Army colonel, as the director of integration to integrate the sustaining base with modernization.

Mr. ROGERS. So, I take it you are not worried about that technology getting too far out in front of you?

General GAMBLE. No, sir. It is—we are not, no, sir, we are not worried about it. We are cognizant that we have to keep pace. That we may—we don't want to wake up one day and have a system that we don't have the sustainment capability of Army to maintain.

Mr. ROGERS. Right. That is my point.

Do any of you have that concern that you are going to wake up one day and not be able to have the infrastructure to work on those new technologies?

I take it by the silence, the answer is no. Good.

In the past, depots have had a hard time advocating for MILCON money for infrastructure. What do you think you are going to be able to do about that in the future? Do you think you are going to be able to be more aggressive in that front and productive?

Admiral MOORE. Yes, sir. Actually, I think what the Navy has tried to do, instead of having each of the depots kind of compete against themself for MILCON funding, which is our past practice, and every depot has its own local constituency, what we found in that area is we were having trouble getting the MILCON funding because we were competing against each other.

The Navy's Shipyard Infrastructure Optimization Plan is really meant to be an integrated plan that takes a look at the infrastructure needs across the entire organic depots that I own. And then the Navy can set the priorities in terms of when, when does the work have to be done. And what I have found is that the innovative plan has allowed the Navy to actually take a holistic look at it. And we are now getting three times the MILCON funding that we were getting when I first came to the job in 2016. And that is likely to double again in the next 3 or 4 years as we head into the plan.

So, I think the competition for MILCON is best served when you can put an innovative plan together and you are not just doing this one project at a time.

Mr. ROGERS. Excellent.

General SHRADER. Sir, if I could just real quick. Certainly in the Marine Corps the fact that the Commandant signed off on our OIB plan this July to me signals that he is going to support the plan.

Mr. ROGERS. Excellent.

General SHRADER. And then the second thing is we do have three large MILCON projects right now underway in Albany, two in Albany and one in Barstow. So there is evidence there, yes, sir.

Mr. ROGERS. Good. And I like your new Commandant. He doesn't mind kicking over furniture and getting things done.

General SHRADER. Yes, sir.

Mr. ROGERS. So, he is my kind of guy.

General SHRADER. Yes, sir.

Mr. ROGERS. General Gamble, talking about carryover, as you mentioned it is a big thing in my world with the Anniston Army Depot, which is one of our largest depots. As you know, I worked with General Perna to get some language that we put into last year's NDAA to hopefully resolve that. I take it from this GAO report we need some more work on that?

General GAMBLE. Sir, I am not prepared to answer that, honestly. I have read the GAO report. I understand it. I understand the Army's position. But I will be honest with you, I have a little bit of a blind spot on the language in the last NDAA specific to carryover.

Mr. ROGERS. Well, I told General Perna at the Depot Caucus Breakfast 2 or 3 months ago that if he needed some more refinement to that language, just let us know. Because I think you have heard up here that we want to be helpful on that. I recognize there may be some differences. But that is true of all of y'all—that is the plural of y'all in Alabama—just get us some language and we want to help you on this. But, specifically, let General Perna know that we want to be helpful.

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

Mr. GARAMENDI. I thank you, Mr. Rogers.

Since we ended that discussion with General Gamble, we have gone around this a couple of times, we need to know from you to fully inform our staff on your 2020 and 2021 land forces depot maintenance budget request. We want to go into detail. Part of what Mr. Rogers was talking about is a piece of this.

We are concerned about happy talk and execution. We want happy talk to be executed, or executed to be happy talk, either way. So, if you will make sure you do that. I am not asking for a commitment. You know that I know that you will do it; correct? Thank you.

General GAMBLE. Yes, sir.

Mr. GARAMENDI. There we go, far end of the table, let's go to Texas.

Ms. ESCOBAR. Chairman, thank you so much for holding this hearing.

Gentlemen, thank you so much for your testimony today and for your service. We are very, very grateful for it.

General Gamble, I know that from your testimony and from what we have learned that Army depots and arsenals sometimes face challenges finding suppliers to provide parts for legacy systems that you need to repair. And we know that General Perna is a big

fan of additive manufacturing. And additive manufacturing is so critical to our modernization and our readiness. It offers great competitive advantages, like faster delivery of parts, shorter acquisition timeline, shorter supply chain, potential cost savings and, in certain cases, can create lighter, heat- and weather-resistant parts.

In my home district, at the University of Texas at El Paso, we have a world-class additive manufacturing facility through the Keck Center. And it is in fact a satellite center for America Makes within the National Center for Defense Manufacturing and Machining system. The kids—I call them kids, although they are young people—who are going through the program are among the brightest in the country. The leadership there is among the most ambitious and very bold in terms of trying to kind of capture the potential of additive manufacturing.

And so, I am wondering if you can, number one, tell us a little bit more about the specific challenges that you face in finding the suppliers and, number two, have you considered partnering with smaller businesses and also academia like at the University of Texas at El Paso through the Keck Center in order to help fill these gaps?

General GAMBLE. Yes, ma'am. Thanks for your question.

So, the challenges of obsolescence are real. And you have pointed out many of those things.

The finding repair suppliers, repair parts suppliers is challenging. In our vision, the Army vision, and our Army Secretary signed out an Army strategy and policy for additive manufacturing just in the last 60 days, and part of the Army vision is just that, to attack the obsolescence problems that we have because our depots are capable of, and they do it all the time, reverse engineer parts that we either can't find a supplier for or it is not economical. But that is not always the best way.

So, obsolescence is a key component of our strategy. We have made, we have actually manufactured over 200 parts since March 19th, many of those obsolete parts, at Rock Island. But that is not our strategy either. Our strategy is to transmit proven data across the network to, even to the far forward edge of the battlefield and print parts forward.

So, as we edge towards that strategy there are tons of opportunity to partner at echelon in our Army. We are not quite there yet. It's a tactical edge. We have some fundamental capabilities in tactical units right now.

But so to answer your second part of your question, yes, there are small business opportunities. And there are more, there are opportunities for greater partnering with institutes—educational institutions and colleges. We are partnered with many right now, but predominantly in the Iowa/Illinois area where our Center of Excellence is. But as we proceed down this path, I do believe there will be expanded opportunities.

Ms. ESCOBAR. I appreciate that. And I would love to host any or all of you at any point in El Paso at the University of Texas at El Paso so that you can see some of the cutting-edge additive manufacturing capabilities that our students and that our academics are helping promote and create.

And I am running out of time, but I would encourage all of our other service leaders to do the same because I know we face the same challenges across the board. And, as such, we face the same opportunities going forward.

Chairman, thank you. I yield back.

Mr. GARAMENDI. Thank you, Ms. Escobar.

You did raise a question that, an issue that I want to bring to the attention of all of you, and that is the small business opportunities. The major contractors are basically moving out of legacy and moving on to tomorrow's systems, leaving behind problems for you all to solve.

I don't believe we have a robust system in place for each of your depots to reach out to small businesses, machine shops, additive manufacturing shops and the like, that may exist 1,000 miles away from your depot. And so, I am going to pursue with you in the months ahead how we might be able to assist you in setting out a very wide net to capture those opportunities that exist out there.

There are modern communications systems that you may be able to use called the internet and the like. So, we want to explore that. I have had the discussion with some of you about this. So, we will carry on with that. Not an issue for today, but an issue that we will come back and ask you about how that might be done service-wide with each of your services and follow up on Ms. Escobar's question.

We will go to another quick round of questions here. I think I have one more. But let me turn to Ms. Horn and then I will wrap it up.

Ms. HORN. Thank you, Chairman. I will be brief. I think this is an important conversation today, and many of my questions have been asked by my colleagues on both sides of this dais, which I truly appreciate about this committee.

I want to follow up on one particular piece of building the workforce and the conversations that have been directed about working with our educational institutions as well as apprenticeship programs and how layering those things are important.

I understand that a few of you work directly with those institutions. I want to ask about the direct relationships.

I know in Oklahoma we have a very strong career tech system, and the ability to not only develop engineers at our advanced educational institutions but the practical skills-based work. And if you have enough, sufficient ability to work directly with those institutions, the career techs, the community colleges, the hands-on and the apprentice programs, to get the specific skills that you need to hire on, and what else you might need authority-wise from us to do that.

And I will just let you go down the line.

General SHRADER. Thank you, ma'am. The answer is yes. Locally with our community colleges, Albany State, Albany Tech, we work with them to help them develop their curriculum so it enables us to take on the workforce and do that. So, the answer to your question is, yes, we are working with them very closely to do that.

General KIRKLAND. Congresswoman, I will add, like General Shrader, we have a close relationship often local and State level

make this happen. In many cases we can take the technical college's training into our actual workspaces.

Just recently, this last quarter in Georgia we have occupied a new facility where we are moving some commodities work. And the Central Georgia Technical College has their students training on the other end of the same facility. And we feel very comfortable about that relationship. It gives them hands-on experience. And candidly, we recruit very well among that training force.

Admiral PETERS. Yes, ma'am, we also partner with the community colleges in North Carolina, Florida, and California. And we have had some success in influencing the curricula such that the skill sets that we are looking for are accomplished there in the community college.

Admiral MOORE. Yeah, we also partner as well. But I would also point out that some of our efforts in our Navy depots are actually below the college level, because I think we need to emphasize that a lot of this workforce that we have today, the blue collar workforce, the welders, electricians, we don't need college graduates. And we need to actually value the artisans that actually get in there and do the really hard work of maintaining these depots, and make that a career that a young man or woman today could get into and spend a lot of time.

And I saw data the other day that if you get trained as a welder at age 18, by the time you are 65 years old you will have made more money than someone who went to medical school and is just a general practitioner. So, I think more emphasis on valuing those skill sets and getting in and doing STEM [science, technology, engineering, and mathematics] early is something that we could, should keep doing.

General GAMBLE. Ma'am, the Army has similar programs. We are very proud. They are generally regional. And just as Admiral Moore pointed out, they support our wage-grade stream of talent as well as the white collar stream of talent.

Ms. HORN. Thank you very much.

And, Admiral Moore, I couldn't agree with you more. I think a greater emphasis on long-term career-building skill sets that are needed across all of the depots and in so many other places in our workforce that goes to the small businesses as well as beyond just the engineering talent that is needed.

And I will just say this and yield back the rest of my time. If there are additional, as we are looking at how we better understand your needs, the carryover, all of the other issues that we have addressed, additional ways that we can encourage cooperation and direct communication with these education institutions, perhaps even not just in the localized areas but across the services, that develop those workforces, that is something that I think we should all be interested in to maintain that organic industrial base.

Thank you. I yield back.

Mr. GARAMENDI. Thank you for raising that set of questions. The Federal money that supports the educational system, the career education training programs, require that those programs reach out to the employers in the area. So, there are two sides of this. Delighted to see the military is reaching out to the education programs. At the same time, those education and career technical pro-

grams out there are required, if they are going to get Federal money, to reach out to the employers, all of whom are sitting at a table. So, that is a back and forth.

I also want to note that with regard to retention, pay is an issue. The continuing resolution that the House passed—and presumably the Senate will take care of it today otherwise we have a shutdown tonight—does not include a pay increase for civilian employees in the military. It does include a pay increase for the military employees and military personnel. So, okay, we are likely to have a problem here on retention if we don't deal with the increase in pay requirements that would be necessary.

A couple of other things. I want to iterate again that each of you have developed a plan for the organic industrial bases that you are responsible for. We will be reviewing those plans in detail. And the rubber meets the road with the money. So, it is show me the money in your budgets going forward in your programs. If it is not there, we will have a discussion, and we will play both offense and defense on this, Mr. Bergman. And it has been known that I can be offensive.

Mr. BERGMAN. Noted.

Mr. GARAMENDI. Well noted.

I want to make sure, we will come back on this hiring thing with a little more definitive discussion on it. It is an issue that continues on. And that is the waiting period and the like.

There is one very, very important and, frankly, a very unhappy thing that I need to do, so I will try to make it as happy as possible. Next to me, Brian Greer is, this is his last year with this committee. He is moving on to greater opportunities over in the non-government, or at least indirect government system. I understand he will be joining a new firm here in the town and become a major part of that firm.

So, Brian, we will certainly miss you. You have been an extraordinary employee for and professional staff here for a long period of time. How many years?

Mr. GREER. Three.

Mr. GARAMENDI. Three years. Thank you so very much for that service here.

And behind us, the Marine Corps has a very serious problem that they are going to have some time overcoming, and that is they have stolen Megan Handal from this committee. And she is going to work down at Quantico.

Mr. SCOTT. General Shrader.

General SHRADER. Sir, I am in Albany, Georgia, so I——

[Laughter.]

Mr. GARAMENDI. You are not the responsible party here?

General SHRADER. The Marine Corps is very good at recognizing talent and poaching it, so.

Mr. GARAMENDI. Okay. We will accept that.

Megan, you have been wonderful to work with. You have been a joy for all of us. And thank you so very much for all of your time with the committee. How long?

Ms. HANDAL. Three years.

Mr. GARAMENDI. Three years.

General SHRADER. Welcome aboard.

Ms. HANDAL. Thank you, sir.

Mr. GARAMENDI. I am getting a feeling here that 3 years is something of importance.

We will miss both of you. And thank you so very much and for all of your service. Thank you very much.

[Applause.]

Mr. GARAMENDI. We will be back. Thank you so very much.

The committee is adjourned.

[Whereupon, at 10:25 a.m., the subcommittee was adjourned.]

A P P E N D I X

NOVEMBER 21, 2019

PREPARED STATEMENTS SUBMITTED FOR THE RECORD

NOVEMBER 21, 2019

Opening Statement of Hon. John Garamendi
Chairman, Subcommittee on Readiness
HEARING ON
The Department of Defense Organic Industrial Base:
Challenges, Solutions and Readiness Impacts

November 21, 2019

Good morning. I'd like to welcome everyone to this hearing of the Readiness Subcommittee on the Department of Defense's Organic Industrial Base. The Department of Defense's organic industrial base, comprised of depots, arsenals and shipyards, is a critical part of our national security apparatus. Its mission is to maintain, reset, and repair the platforms, equipment and supplies of our armed forces. The organic industrial base must be postured to support peace time requirements while be agile enough to respond during mobilization, a contingency, or an emergency. Both of these requirements are at the crux of Readiness, thereby requiring the oversight of this Subcommittee.

As the Department of Defense acquires new, planes, ships and vehicles, and weapon systems and implements the National Defense Strategy; it cannot ignore the operation and support portion of the acquisition cycle and should plan strategically. This subcommittee is interested in hearing from our witnesses how the services plan to modemize the organic industrial base to ensure that it will continue to be postured to maintain these modernized systems.

If the organic industrial base cannot quickly repair weapons systems as they require maintenance, then we are doing ourselves a disservice. Furthermore, as we field new platforms, insufficient planning for operation, maintenance and repair of those platforms is completely unacceptable.

Regarding our organic industrial base infrastructure, it is widely known that the facilities and the equipment in our organic industrial base is aging and, in certain locations, is in poor or failing condition. This situation does not help maintainers if they are required to work in dilapidated buildings with equipment made decades ago. With that in mind, we must have a plan to prioritize the facilities, sustainment, restoration and modernization accounts that support in the organic industrial base facilities. To that end, I look forward to hearing from our witnesses on their plans to modernize the infrasturcutre and capital equipment of the shipyards, arsenals, and depots.

In addition to the facilities and equipment, we cannot, and should not ignore the essential organic industrial base workforce. The federal civil servants working at these locations across the globe provide unique skillsets that we cannot afford to lose. Their mission is essential, and we must make sure we can hire and train the next generation in a timely fashion and give them the protections and rights they deserve for their loyalty.

While depot, arsenal and shipyard hiring managers have the ability to hire different types of employees whether it be term, temporary, full time federal

employees or contractors, we must continue the oversight of this workforce to make sure people are being utilized and employed appropriately. In addition, we need to ensure that the Department's senior leaders have the tools and authorities they need in order to compete with the private sector to recruit, train, and retain a motivated and skilled workforce.

In closing, we need to continue to focus on readiness and investing in the organic industrial base as it is a key contributorto military readiness. I look forward to hearing from our witnesses here today on the challenges they experience in their organic industrial base and their lines of effort to address these challenges and ensure the Organic Industrial Base is postured to support the National Defense Strategy and military requirements well into the 21st century.

Statement of Hon. Doug Lamborn
Ranking Member, Subcommittee on Readiness
HEARING ON
The Department of Defense Organic Industrial Base:
Challenges, Solutions and Readiness Impacts
November 21, 2019

Thank you, Chairman Garamendi. I would like to thank each of our witnesses for their testimony today. The depots within our military services are essential to maintaining the complex ships, aircraft, and land systems that form the building blocks of the Joint Force.

It is not enough for our depots to meet today's requirements. We must also posture them to remain relevant for future demand. This raises a major concern about the state of our aging infrastructure. In an April 2019 report, the Government Accountability Office found that although most depot facilities are rated "poor" on the DOD rating scale, the "military services do not consistently track when facilities and equipment conditions lead to maintenance delays." GAO also found that the trend for facility condition is downward.

As the cost and complexities of major defense systems continue to evolve, we have to build capacity to support those systems. At the same time, we will continue to rely on many legacy platforms to serve well past their intended life cycles. The B-52 Stratofortress, for example, first flew in 1954 and is now estimated to fly into the 2040s. The M1 Abrams, although significantly upgraded, was designed in the 1970s and first fielded in the 1980s.

The Navy has an ambitious 20-year, $21 billion Shipyard Infrastructure Optimization Plan and has started the process to map existing facilities to aid in design. In a recent hearing with Secretary Geurts and Vice Admiral Moore we discussed the need for the Navy to resource this plan. We also discussed NAVSEA's efforts, in partnership with the Fleet Commanders, to level load the private shipyards and send a predicable demand signal to industry.

The Army has invested more than $1 billion over the past 10 years to upgrade its depot facilities and estimates it will cost another $8.3 billion in military construction and modernization funds to fully recapitalize. These long-term plans require senior leader commitment and sustained resources to reach fruition. The Air Force, Marine Corps, and NAVAIR also have long term plans in various stages of maturity. I look forward to learning more detail about the investments required to support their efforts.

For the Army, I look forward do a detailed discussion about the size and breakdown of the depot requirement. The Committee needs better clarity if we are going to support our warfighters. The Army has nearly double the carryover work that is funded but not finished compared to the next highest Service. I have some concerns, but would broadly like to understand if it is an outgrowth of budget uncertainties, related to process issues, or caused by supply chain issues.

With regards to the Air Force, Navy, and Marine Corps, I look forward to hearing about your efforts to stand-up some organic maintenance capability to support the Joint Strike Fighter. We heard testimony last week from Secretary Lord and Lieutenant General Fick about F-35 sustainment, which will cost more than $1 trillion over its life cycle. They informed the Committee that you are implementing some work sets to support the program. I look forward to hearing about these efforts and whether you have sufficient access to intellectual property to support the work.

The trained artisans in our workforce are the key to success or failure of the depot enterprise. The Services have struggled to fill these positions, whether the root cause was funding uncertainty or the burdensome hiring process. My understanding is that we have made significant progress, but I look forward to hearing from our witnesses about what more can be done.

Finally, I am concerned that when we extend the life of major defense systems, we often pay premiums for old technology that is less capable, dependent on a shallow bench of suppliers, relies on obsolete manufacturing processes, and is not reasonably fuel efficient. Many depots are actively involved in reverse engineering old components to address these challenges, and we would appreciate our witnesses sharing their insights.

These are tough problems, but my view is that they can all be addressed if we have the discipline to plan, resource, and implement the solutions.

Thank you, Mr. Chairman, I yield back.

RECORD VERSION

STATEMENT BY

LIEUTENANT GENERAL DUANE A. GAMBLE
DEPUTY CHIEF OF STAFF G-4, UNITED STATES ARMY

BEFORE THE

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

FIRST SESSION, 116TH CONGRESS

THE DEPARTMENT OF DEFENSE ORGANIC INDUSTRIAL BASE: CHALLENGES, SOLUTIONS AND READINESS IMPACTS

NOVEMBER 21, 2019

NOT FOR PUBLICATION UNTIL RELEASED BY THE
COMMITTEE ON ARMED SERVICES

Introduction

Chairman Garamendi, Ranking Member Lamborn, and distinguished members of the Subcommittee, thank you for the opportunity to testify today on our Army's Organic Industrial Base (OIB) and the critical role it provides in supporting sustainment requirements for our current and our future Army.

On behalf of Secretary McCarthy and General McConville, I would like to express our gratitude for your strong support. The OIB is decisive to our Army's strategic readiness and your support enables us to maintain a viable, ready OIB that generates Army readiness at an unparalleled rate.

Our Army's OIB consists of ammunition plants, depots, and manufacturing arsenals that produce and restore our warfighting equipment and ammunition, which generates combat power. The OIB generates readiness and operational capability throughout the total Army. OIB capability and capacity is essential to meet the requirements laid out in the National Defense Strategy (NDS).

Workload

Well-balanced, predictable funding is the foundation upon which we build predictable workload. This is essential for both fleet and unit readiness and a viable OIB. To meet our Army's readiness needs, we are strategically investing resources in the highest priority and focused readiness unit requirements first. While meeting our highest readiness priorities, we ensure a viable workforce for future surge capability through a combination of work for our Army, work for the other Services, and work to support foreign military sales that will preserve the skill sets that are critical and unique to our Army's OIB.

The Army develops our weapon system sustainment requirements through deliberate, comprehensive and collaborative processes that begin in acquisition and continue through transition to sustainment and divestiture. These processes are co-chaired by senior civilian and military leaders (the Army's Acquisition Executive, the Commander of Army Materiel Command, and the Commander of Futures Command).

To forecast our future requirements we use Life-Cycle Sustainment Plans and the Strategic Portfolio Analysis Review and we align them to the Army's readiness demands to balance and resource modernization and sustainment requirements according to NDS priorities.

To determine the total sustainment maintenance requirement for each fiscal year, we must first address total fleet requirements. To do this, we analyze historical

readiness rates, operational tempo and sustainment costs, and balance that against modernization demands. From there, we prioritize Army readiness requirements based on the NDS, senior leaders assess risk, and we apply available resources to maintain acceptable unit and fleet readiness.

Although we can't fund every single requirement each year, the Army has been as committed to sustainment and current readiness as we have been to modernization. Our depot maintenance budget request for FY20 is almost $2 billion covering work across the Active, Reserve, and National Guard components. By making strategic decisions about what maintenance we can defer to future fiscal years, we are able to meet our highest priority readiness requirements and balance our depot maintenance funding with other Army priorities.

In the absence of unconstrained resources, deferred maintenance, along with industrial base carryover, allows us to smooth workload into future years. This helps keep direct labor hours and depot workload stable in future periods of declined requirements.

Facilities

To ensure our OIB facilities and infrastructure are postured and programmed to support current readiness and requirements, the Army has invested more than $1B over the past 10 years, ensuring that we meet or exceed statutory requirements and are leveraging all the resources available, to include Restoration and Modernization dollars, to ensure our facilities remain ready to meet the Army's operational objectives. The Army regularly assesses the OIB to inform resourcing decisions required to meet the demands of the NDS, including conducting quarterly annual Installation Status Reviews that assess facility readiness across the OIB and provide a comprehensive analysis. We recognize that without significant investment in both our facilities and infrastructure, OIB readiness will decline, putting our ability to meet future requirements at risk. In order to avoid future risk and maintain the appropriate level of readiness, we developed the OIB Infrastructure Master Plan to identify, prioritize, and resource projects over the next 20 years.

Today, the average age of our Government Owned and Government Operated (GOGO) OIB facilities and infrastructure is 54 years, with about 53% built before 1945. Initial estimated costs for modernizing GOGO OIB installations, in terms of facilities, equipment, and energy is $8.3 billion over the next 20 years. The estimate includes Military Construction funding to replace substandard facilities and support new missions; Restoration and Modernization funding to extend the useful life of existing structures; funding to modernize capabilities with new industrial equipment, as well as

information technology, network, and cyber solutions; and funding to ensure resiliency of the energy infrastructure powering the Army's industrial capabilities.

We know we must also modernize facilities while we modernize weapon systems, executing Installation Status Reviews annually to assess facility and capital equipment capabilities to meet equipment readiness requirements. The increases you authorized to the minor MILCON threshold and the authority to use O&M will help us meet these objectives.

Workforce

The backbone of the OIB is our skilled workforce and as our workforce ages our ability to attract, hire, and train new talent will be essential to maintaining the viability and output of the OIB. The GOGO depots, arsenals, and ammo plants employ approximately 22,000 personnel in permanent, temporary or term, and contractor positions. The flexibility provided by Direct Hiring Authority helped us process over 3,560 personnel actions in FY19 and over 4,800 since 2017. It helped us reduce the time to hire from 114 to 85 days, helping our facilities remain competitive with industry employers seeking the same critical skill sets. Still, we know there is more work to do to reduce the time-to-hire as we seek not only to competitively promote and retain, but recruit the very best workforce in the future which is vital to enabling Army readiness.

To ensure the workforce we have is prepared for modernized future requirements, we partner with private corporations, universities and technical colleges to provide training, education and work experience in new and emerging technology. These partnerships allow us to attract, train, and develop a skilled workforce prepared to meet emerging readiness requirements. We leverage different skill sets to meet workload requirements by cross-training personnel across multiple platforms which enables us to maximize utilization of our current workforce and ensure a breadth and depth of technical expertise is readily available.

The future OIB workforce will need to be as modern as our equipment and facilities. The permanent ability to streamline the hiring process with direct hiring authority, the flexibility to place highly-skilled temporary or term employees into permanent positions, and a steady long-term flow of work will be essential as the OIB modernizes for the future.

Closing

Our OIB is decisive to our Army readiness, reliably delivering readiness on the battlefield and simultaneously preparing to modernize to meet the needs of the future force. Maintaining materiel readiness is critical to ensuring the Army can meet the

demands of our Combatant Commands across the globe and provide the responsiveness, depth and capability demanded of us in the NDS.

As we implement initiatives like Repair Cycle Float, improvements like our Infrastructure Master Plan, and continue to hone in on supply availability and capacity planning, the Army will need continued Congressional support to be successful. Consistent investments, flexibility like Direct Hiring Authority, and the flexibility to manage our workload and workforce will be essential for the OIB of the future.

I would like to thank each distinguished member of the Committee for holding this hearing. Your support will allow us to continue to maintain current sustainment readiness while modernizing to meet the needs of the future Army.

Lieutenant General Duane A. Gamble
U.S. Army, Deputy Chief of Staff, G-4

Lieutenant General Duane A. Gamble assumed the duties as the Deputy Chief of Staff, G-4 on 16 September 2019. He oversees policies and procedures used by all Army Logisticians throughout the world. He previously served as Commanding General of the US. Army Sustainment Command from July 2017 to August 2019.

A native of Arbutus, Maryland, LTG Gamble attended Western Maryland College (since renamed McDaniel College), where he earned a Bachelor of Arts degree and was commissioned as an Ordnance officer in May, 1985. He has Masters of Science degrees from the Florida Institute of Technology and the Industrial College of the Armed Forces (since renamed the Dwight D. Eisenhower School for National Security and Resource Strategy).

Prior to assuming duties as the Deputy Chief of Staff, G-4, his most significant assignments include: Commanding General, U.S. Army Sustainment Command; Commanding General, 21st Theater Sustainment Command; Assistant Deputy Chief of Staff for Logistics (G-4), Headquarters, Department of the Army; and Deputy Commanding General of the 1st Theater Sustainment Command.

LTG Gamble's other notable assignments include: Commander, 528th Sustainment Brigade (Airborne), supporting Army Special Operations Forces in Iraq, Afghanistan, and the Philippines; Commander, 426th Forward Support Battalion (Air Assault) supporting the Bastogne Brigade (1st Brigade, 101st Airborne Division); Deputy Commanding Officer, 46th Corps Support Group (Airborne); and Commander, Company B, 782nd Maintenance Battalion (Airborne) supporting the Falcon Brigade (2nd Brigade, 82nd Airborne) during Operations Desert Storm and Desert Shield.

His other key staff assignments include: Director, Force Projection and Distribution (G-44D), Army G-4; Deputy J-4, United States Forces Iraq; J-4, Joint Task Force Haiti; G-4, XVIII Airborne Corps; G-4, NATO Rapid Deployable Corps -- Turkey; Executive Officer for the Army Materiel Command G3; G4, 101st Airborne Division (Air Assault) during Operation Iraqi Freedom; and Executive Officer, 307th Forward Support Battalion (Airborne), 82nd Airborne Division.

LTG Gamble's awards and decorations include the Distinguished Service Medal, Bronze Star Medal (with Oak Leaf Cluster), Air Assault Badge, and Master Parachutist Badge.

NOT FOR PUBLICATION UNTIL
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SERVICES COMMITTEE

STATEMENT OF

VICE ADMIRAL THOMAS J. MOORE
COMMANDER, NAVAL SEA SYSTEMS COMMAND

AND

VICE ADMIRAL G. DEAN PETERS
COMMANDER, NAVAL AIR SYSTEMS COMMAND

BEFORE THE

SUBCOMMITTEE ON READINESS

OF THE

HOUSE ARMED SERVICES COMMITTEE

ON

ORGANIC INDUSTRIAL BASE ISSUES

NOVEMBER 21, 2019

NOT FOR PUBLICATION UNTIL
RELEASED BY THE SENATE ARMED
SERVICES COMMITTEE

Mr. Chairman, Ranking Member Lamborn, and distinguished members of the Subcommittee, thank you for the opportunity to testify on the Department of the Navy's Organic Industrial Base. The Navy's organic industrial base is critical to completing required maintenance and modernization on the ships, submarines, and aircraft the combatant commanders require to execute their missions. The Department approaches maintenance with a sense of urgency knowing our forward deployed warfighting assets are critical to dissuading aggression and responding to hostile actions and natural disasters.

The Navy benefited greatly from having its full budget on-time in Fiscal Year (FY) 2019. Beginning FY 2020 with a continuing resolution, which expires today, returns us to a state of uncertainty. As with any industry, stable and predictable budgets are crucial to the Navy's ability to execute contracts and maintenance actions required to keep our Navy in the fight. In most hearings we are asked what Congress can do to support our efforts – our answer is simple, support and pass the President's Budget on time.

Naval Shipyards

The Navy faces high-tempo operations, budget pressures, and a fragile industrial base that has generated a maintenance backlog and reduced readiness of Navy ships over the past decade. In the 1980s, the Navy had nearly 600 ships in the Fleet and kept roughly 100 – or 17 percent – deployed at any one time. Today, our Battle Force stands at 292 ships, of which 77 – or 26 percent of the Fleet – are at sea, compounding readiness challenges. Though our warships are more capable and more mechanically reliable than those of previous generations, maintenance and sustainment remains critical to our ability to deploy a ready Fleet.

Stable budgets, improved forecasting, and a better maintenance plan have put us on an improving trend. Over the past year, the Navy has reduced delayed maintenance by half, going from 1,734 total days delayed in FY18 to 894 total days in FY19. Three aircraft carriers and one submarine delivered on time or early, continuing a trend which has seen us deliver nine of the last 10 aircraft carriers on time. Currently, 13 submarines and two aircraft carriers are undergoing CNO level maintenance at the four public shipyards. Of those, eight submarines and both aircraft carriers are on track to deliver on time.

To improve the on-time delivery of ships from naval shipyard availabilities, the Navy is focused on five main objectives: matching the size of the workforce to the planned workload; improving the way we train the workforce; developing innovative technologies to improve cost and schedule performance; fully modernizing our shipyards by recapitalizing equipment, modernizing our drydocks, and improving the layout and workflow; and improving the productivity of our workforce.

The Navy's four public shipyards have seen a 25 percent increase in their planned workload since 2010. To match the growth, the Navy has increased the size of our public shipyard workforce by more than 9,000 people, going from 27,368 employees in 2010 (measured in End-Strength) to 36,696 employees in 2018. The Navy reached its desired end strength about one year ahead of schedule, which has allowed us to both stop the growth in the backlog of work and reduce backlog earlier than planned. However, the rapid growth of the workforce has resulted in a less experienced workforce with 50 percent of workers having less than five years of experience. To get new hires trained more efficiently, the shipyards have transformed how they train their new employees through learning centers that use both virtual learning tools and hands-on work. The Navy has carried that innovative concept to the waterfront by developing "safe-to-fail" areas where artisans can experiment with new and innovative techniques to improve throughput or save time during an availability. Over the past four years, these learning centers have reduced reduce the time required to train employees by more than 50 percent and allow them to work more quickly on Navy assets.

To improve productivity, NAVSEA is utilizing innovative processes to reduce the time and cost of maintenance availabilities. Naval Undersea Warfare Center Division Keyport and Puget Sound Naval Shipyard (PSNS) are collaborating on three technologies that have the potential to produce significant results. One of the most mature concepts is cold spray. Cold spray is a technology in which metal powders are accelerated at high speeds and sprayed through a nozzle that then mechanically bonds to a surface. This produces high performanee coatings that can extend the life of legacy weapon and hull mechanical systems. The Navy has demonstrated that it can save significant time and cost utilizing cold spray, in some cases restoring valves in three days when previously we required ten months due to having to ship the component to vendor sites for refurbishment. Cold spray is currently in use at PSNY, Pearl Harbor Naval Shipyard (PHNSY), and Norfolk Naval Shipyard (NNSY) and Portsmouth Naval Shipyard (PNSY) will have its cold spray capability delivered in FY 2020.

Another promising technology is a hull-crawling robot that can carry a variety of equipment to conduct hull inspections, non-destructive testing and biofouling removal. This obviates the need for scaffolding or lifting equipment, reduces dry docking periods by up to two weeks, and improves worker safety. PNSY tested the robot on a recently dry-docked submarine to demonstrate its ability to remain affixed to a hull that had biological fouling.

A third innovation, laser ablation for paint removal, completed a successful operational demonstration in October aboard USS Carl Vinson (CVN 70). This technology reduces the work hours needed to execute preservation activities through set-up, operation, and clean-up, as well as increasing safety of sailors and workforce through ergonomics, industrial hygiene, reducing exposure to hazardous

chemicals, and more easily managing hazards. Laser ablation also creates a cleaner environmental footprint by reducing the debris, fumes, and noise currently generated by conventional paint-removal methods.

The Navy is also leveraging the recent successes of the Naval Sustainment System (NSS) – Aviation that has increased the mission capability rates of its F/A-18 E/F fleet by creating NSS – Shipyards. Similar to NSS-Aviation, NSS-Shipyards brought in outside business process experts to improve productivity and identify areas for long-term improvement at Norfolk Naval Shipyard and PSNS. A similar effort is being planned for PNSY and PHNSY.

Now in its second year, the Shipyard Infrastructure Optimization Program (SIOP), a planned 20-year, $21 billion effort, will transform shipyards originally designed and laid out to support building ships of sail and coal into 21st century shipyards dedicated to executing complex maintenance availabilities on the Navy's nuclear-powered aircraft carriers and submarines. Fully executed, SIOP will deliver required dry-dock repairs and upgrades to support both current and future classes of ships, optimize workflow within the shipyards through significant changes to their physical layout, and recapitalize obsolete capital equipment with modern machines that will dramatically increase productivity and safety.

In two years, the Navy has delivered or started a series of projects and commenced the delivery of new capital equipment across the four shipyards:

For PHNSY, the Navy has delivered 150-ton heavy lift transporters to support Virginia-class submarine availabilities. More importantly, the Navy and its industry partner tracked every aspect of the recent USS Asheville (SSN 758) maintenance availability to build a "digital twin" of the shipyard. This dynamic virtual shipyard will enable the Navy to manipulate data and measure the impact of moving certain shops and workspaces to different areas within the existing footprint. Once the full capability is delivered in February 2020, the Navy will use this data to reimagine the shipyard to improve productivity, safety, and the quality of life for our shipyard personnel. Pearl Harbor Naval Shipyard will also be the first shipyard to receive a Dry Dock Production Facility (DDPF), which, as currently envisioned, will enclose multiple dry docks and move much of the production work to the waterfront.

Puget Sound Naval Shipyard will be the second naval shipyard to have a digital twin built. To ensure the Navy properly understands the complex workflow, it will track both aircraft carrier and submarine availabilities. Work started on this effort on October 15, 2019 and final delivery is expected in fall 2020. Puget Sound Naval Shipyard received the first 55-ton mobile crane this year, which will allow the shipyard to more effectively execute maintenance work. Laser ablation was successfully

demonstrated in production on the USS Carl Vinson (CVN 70), following a baseline metal purity testing on the CVN hull. Testing is still ongoing to exploit the technology on other platforms.

Portsmouth Naval Shipyard replaced an obsolete and maintenance-intensive lathe with a computer operated Horizontal Turning Center. The center will improve productivity at PNSY and reduces the maintenance burden on our workforce. Work has also begun in the Dry Dock #1 area in preparation for refueling selected Los Angeles Class submarines. Efforts include building a super flood basin and P1074, which will be dedicated to the Los Angeles Class Service Life Extension. Portsmouth has also begun its 3D imaging scan by conducting the first ever scan of a submarine, USS Cheyenne (SSN 773). Work on PNSY's digital twin is scheduled to begin 2020.

Norfolk Naval Shipyard has seen a number of military construction efforts begin or deliver in the past year. On June 14, 2019, the renovated Waterfront Operations Support Facility (Building 1735) located near Pier 3 re-opened. This two-story structure houses 15 shop spaces and allows the work to be executed near the ships, reducing travel time and increasing efficiency. On July 1, 2019, the Navy broke ground on a new Production Training Facility that will host most of the training classes and shops for the entire shipyard. NNSY also completed installation of a Bridge Mill which replaces two obsolete and less effective machines to support aircraft carrier and submarine shaft, rudder, and fairwater plane work and a new computer numerical control hydraulic ram designed to punch precise holes in steel. Further, the Navy is in negotiations to award a contract to build a new defueling and inactivation complex that will replace a 25-year old facility. The new M-140 Complex will alleviate frequently required repair work and support the increase in submarine inactivations planned for the 2020s. The Navy also awarded a contract for a horizontal boring mill for NNSY's Naval Foundry and Propeller Center in Philadelphia, PA, to support Columbia Class (SSBN) and Virginia Class (SSN) propulsor manufacturing. The Navy plans to begin NNSY's digital twin effort in early 2020.

The result of these integrated efforts is producing positive change across the naval shipyard enterprise. This includes completing nine of the last 10 CVN availabilities on time or early, including the recent early delivery of USS Nimitz (CVN 68), the Navy's oldest combat ship, from a docking availability at PSNS. Additionally, the Navy has reduced the days of maintenance delay at our naval shipyards by more than 40 percent since 2016.

Naval Aviation Fleet Readiness Centers

Commander, Fleet Readiness Centers (COMFRC) oversees three depots, ten intermediate level maintenance centers and 25 detachments providing Maintenance, Repair and Overhaul (MRO) of Navy and Marine Corps aircraft, engines, components and support equipment, as well as logistics and

engineering support to Navy and Marine Corps squadrons throughout the world. Our highly skilled workforce spans six countries and territories: Japan; Guam; Korea; Malaysia; Bahrain; and Djibouti, and 13 states: Washington; California; Florida; North Carolina; Virginia; Maryland; Texas; Hawaii; Nevada; New Jersey; South Carolina; Arizona; Louisiana; and the District of Columbia. COMFRC comprises approximately 12,000 civilians, 6,000 Sailors and Marines, and 3,000 contractors. The government civilians include: 7,900 artisans; 2,200 engineers; 900 logisticians; and 1,000 support personnel (program managers, budget and financial managers, contracting officers, legal support, etc.)

Recent modest improvements in the readiness of our Naval Aviation platforms began with transformation of Fleet Readiness Center (FRC) component production lines and F/A-18E/F heavy depot repair lines. By incorporating MRO commercial best practices, the inefficiencies in production line support were systematically identified and mitigated. The repair process, including supply chain and engineering support was made transparent, resulting in improved performance on targeted production lines. Significantly reduced turn-around-times for F/A-18E/F heavy depot repairs resulted in more "up" aircraft on fleet flight lines and was a contributing factor in meeting and exceeding 80 percent Mission Capable rates in Fiscal Year 2019, as mandated by then Secretary of Defense Mattis. Initial implementation of the reforms were focused at FRC West for aircraft heavy depot maintenance and at FRC Southwest for component repair. Lessons learned from these sites transferred east to FRC Mid-Atlantic for aircraft heavy depot maintenance and to FRC East for component repair.

To sustain these gains in readiness, MRO commercial best practices are being incorporated across all depot lines and expanded to include intermediate maintenance operations. In addition, the allocation of depot artisans assigned to depot repair lines and in-service repairs at fleet locations is being centrally managed to ensure an optimum balance of resources.

The safety of our FRC workforce continues to be of utmost importance and COMFRC's Safety Management System (SMS) is based upon a safety-first culture. We promote continual improvement and emphasize hazard prevention, program evaluation, employee involvement, training and industry standard certifications as necessary elements of our MRO operations. Evidence of effectivencss is our FY19 Total Case Incident Rate (TCIR) rate of 2.24 and Days Away, Restricted or Transferred (DART) Rate of 1.38; the lowest rates in COMFRC safety history. As a reference, the Bureau of Labor Statistics reflects 3.4 TCIR/2.2 DART rates as standards for the aircraft manufacturing industry. All of our FRCs have achieved SMS Gold Status, which is a measure of sustained safety program compliance. Our Depot-level FRCs have obtained registration in the Occupational Health and Safety Assessment Series (OHSAS) 18001 and ISO 140001, have been awarded the CNO Aviation and Ashore Awards six years in a row and one of our Depots recently became the first Naval Aviation Command to achieve the

Occupational Safety and Health Administration's Voluntary Protection Program Star status in its application areas.

Recruitment and retention of the skilled workforce continues to improve. During FY2018 and throughout FY2019, we launched an aggressive hiring campaign to increase engineering, logistics and artisan end strength in order to meet increased Fleet readiness goals. We met our hiring goals, increasing workforce size across our depots from 10,304 at the beginning of FY2018 to 11,581 at the end of FY2019. Direct Hiring Authority was instrumental in our ability to meet this challenge. During FY2019, we launched a National Apprenticeship Program, inducting 148 selectees into a highly structured four-year program. Candidates have committed to a Continued Service Agreement of two years after graduating from the program. In FY2020, we are targeting selection of 168 new apprentices. Regarding hiring performance, we continue to face challenges in competition for talent in the San Diego area. During FY2019, we developed a Special Rate Request for Wage employees that is under review within the Department of Defense. In order to achieve readiness goals, we supplemented our government workforce with contractors in key, hard to fill skill areas.

Looking forward, we continue to refine our organizational construct to align more effectively with our mission. As part of the Naval Air Systems Command Mission Aligned Organization, we have strengthened our Production Engineering and Production Logistics components and enhanced digital integration. We also stood up a national procurement capability for both services and products.

In addition to workforce skills improvement, we continue to modernize and upgrade facilities and equipment. On April 11, 2019, our Phase 1 Infrastructure Optimization Plan (IOP) interim report was submitted to Congress. Phase 1 provided an initial baseline assessment of our most critical production and manufacturing facilities and equipment. IOP Phase 2, which provides a comprehensive assessment of our industrial base, is underway. We will submit a Report to Congress detailing the workload assessment and infrastructure lifecycle analysis in the third quarter of FY2020. Infrastructure – particularly Military Construction – continues to be a significant challenge.

We look forward to continuing to work with Congress to provide the Fleet Readiness Centers with the resources necessary to recover Naval Aviation readiness.

Vice Admiral Thomas J. Moore
Commander , Naval Sea Systems Command

A second generation naval officer, Vice Adm. Thomas Moore graduated from the United States Naval Academy in 1981 with a Bachelor of Science in Math/Operations Analysis. He also holds a degree in information systems management from George Washington University and a Master of Science and an engineer's degree in Nuclear Engineering from the Massachusetts Institute of Technology.

As a surface nuclear trained officer for 13 years, he served in various operational and engineering billets aboard USS South Carolina (CGN 37) as machinery division officer, reactor training assistant and electrical officer; USS Virginia (CGN 38) as main propulsion assistant; USS Conyngham (DDG 17) as weapons officer; and USS Enterprise (CVN 65) as the number one plant station officer responsible for the de-fueling, refueling and testing of the ship's two lead reactor plants during her 1991-1994 refueling complex overhaul (RCOH). Additionally, ashore he served two years as a company officer at the United States Naval Academy.

In 1994, he was selected for lateral transfer to the engineering duty officer community where he served in various staff engineering, maintenance, technical and program management positions including, carrier overhaul project officer at the Supervisor of Shipbuilding, Newport News, Virginia, where he led the overhaul of the USS Enterprise (CVN 65), USS Theodore Roosevelt (CVN 71) and the first year of the USS Nimitz (CVN 68) RCOH; assistant program manager for In-Service Aircraft Carriers (PMS 312) in the office of the Program Executive Officer, Aircraft Carriers, Aircraft Carrier Hull, Mechanical and Electrical (HM&E) requirements officer on the staff of the chief of Naval Operations Air Warfare Division (OPNAV N78); and, five years in command as the major program manager for In-Service Aircraft Carriers (PMS 312) where he was responsible for the new construction of the George H.W. Bush (CVN 77), the RCOH of the USS Dwight D. Eisenhower (CVN 69) and the USS Carl Vinson (CVN 70) and the life cycle management of all In-Service Aircraft Carriers.

In April 2008, he reported to the staff of the chief of Naval Operations as the deputy director, Fleet Readiness, Office of the Chief of Naval Operations (OPNAV) N43B. From May 2010 to July 2011, he served as the director, Fleet Readiness, OPNAV N43.

Moore commanded the Program Executive Office for Aircraft Carriers from August 11, 2011 to June 1, 2016. Over this five year period, he led the largest ship acquisition program in the U.S. Navy portfolio; was responsible for designing, building, testing and delivering Ford-class carriers; led the Navy's first-ever inactivation of a nuclear-powered aircraft carrier, USS Enterprise (CVN-65); and was the lead in the U.S.-India Joint Working Group Aircraft Carrier Technology Cooperation.

Moore became the 44th commander of Naval Sea Systems Command (NAVSEA) June 10, 2016. As NAVSEA commander, he oversees a global workforce of more than 73,000 military and civilian personnel responsible for the development, delivery and maintenance of the Navy's ships, submarines and systems.

Moore's personal awards include the Distinguished Service Medal, Legion of Merit (three awards), Meritorious Service Medal (four awards), and the Navy and Marine Corps Commendation Medal (three awards).

Vice Admiral G. Dean Peters
Commander, Naval Air Systems Command

Vice Adm. Dean Peters is a native of Louisville, Kentucky. He's a 1985 graduate of the U.S. Naval Academy. Peters has earned post- graduate degrees in Aeronautical Engineering and Telecommunications and is a graduate of the U.S. Naval Test Pilot School, Class 102.

After earning his wings as a naval aviator in 1986, he flew the SH-2F Seasprite in support of multiple detachments deployed to the North Atlantic, Persian Gulf and Gulf of Mexico, completing anti-submarine warfare, surface warfare and counter-narcotics operations embarked on four different ship classes. He served as detachment officer-in- charge aboard USS Thomas C. Hart (FF 1092).

As commanding officer of Air Test and Evaluation Squadron (HX) 21, the squadron accomplished over 11,000 flight test hours and was the 2006 recipient of the CNO Safety Award.

Peters has served in numerous acquisition billets. From Nov. 2007 through July 2011, Peters served as program manager for the H-60 Helicopters Program Office (PMA-299), delivering over 150 helicopters, numerous upgrades, and supporting the first three carrier strike group deployments of the MH-60R and MH-60S Seahawks. From Aug. 2011 to July 2014, Peters commanded the Presidential Helicopters Program Office (PMA-274), leading the program through Milestone B and contract award for the Engineering and Manufacturing Development Program.

Peters' flag assignments include commander, Naval Air Warfare Center Aircraft Division; assistant NAVAIR Commander for Research and Engineering; and program executive officer, Air Anti-Submarine Warfare, Assault and Special Mission Programs (PEO(A)).

He has more than 3,800 flight hours in fixed wing and rotary wing aircraft.

Peters assumed responsibilities as Commander, Naval Air Systems Command in May 2018.

Updated: 5 June 2018

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE

SUBCOMMITTEE ON READINESS

COMMITTEE ON ARMED SERVICES

UNITED STATES HOUSE OF REPRESENTATIVES

STATEMENT OF: Lieutenant General Donald E. (Gene) Kirkland
Commander
Air Force Sustainment Center

SUBJECT: The Department of Defense Organic Industrial Base: Challenges, Solutions and Readiness Impacts

November 21, 2019

NOT FOR PUBLICATION UNTIL RELEASED
BY THE COMMITTEE ON ARMED SERVICES
UNITED STATES HOUSE OF REPRESENTATIVES

Introduction

Chairman Garamendi, Ranking Member Lamborn, distinguished Members of the Readiness Subcommittee, thank you for the opportunity to provide you with an update on the Organic Industrial Base within the Air Force. On behalf of our Secretary, the Honorable Barbara Barrett, and our Chief of Staff, General David Goldfein, thank you for your continued support and demonstrated commitment to our Airmen, Air Force Civilians, Families, and Veterans.

From its inception, the United States Air Force has relied upon a strong organic industrial base to deliver combat air power second to none. The mission of the Air Force Sustainment Center is part of the culmination of that distinct history as it executes lethal air power through organic logistics processes; manages the global supply chain; and sets the theater as the engine of readiness. We directly support every combatant commander, service, and interagency partner, as well as partner nations with organic depot-level maintenance and supply chain management, and power projection for legacy and fifth-generation weapons systems.

Our nearly 40,000 Total Force Airmen are laser-focused on providing cost-effective sustainment and logistics capabilities within available resources and authorities. We develop ways to sustain legacy weapons systems using 21st Century processes. Our three Air Logistics Complexes provide depot-level maintenance, engineering support, and software development to numerous weapon systems. Our two Supply Chain Wings provide serviceable spare parts to meet dynamic warfighter needs while supporting global sustainment. And, our three Air Base Wings manage large installations and the infrastructure supporting our organic depots.

The Air Force Sustainment Center is our nation's aerospace readiness and war-sustaining insurance policy. We are proud to sustain America's first and most agile response to crisis and

conflict, underwriting every Joint operation. Our Air Force must continue to adapt and invest in the organic industrial base and sustainment enterprise to ensure we are ready to deter and defeat potential adversaries tomorrow. Among the many tools Congress has given us to meet this sober responsibility, recent action to expand civilian hiring authorities has been indispensable.

We still experience substantial readiness and sustainment challenges due to aging weapon systems further complicated by an aging infrastructure footprint that harkens back to the 1940s, a diminishing supply and manufacturing base, and a federal workforce hiring process that is improving but not yet conducive to supporting today's environment. Despite these significant challenges, the Air Force Sustainment Center provides state-of-the-art sustainment to our nation's diverse weapons systems –from the venerable B-52 and KC-135 to the most modern and technologically advanced systems like the F-35 Joint Strike Fighter, F-22 Raptor and looking ahead, the KC-46 Pegasus and B-21 Raider platforms.

In Fiscal Year 2019 (FY19) the Air Force Sustainment Center delivered 593 aircraft, 473 engines, 207,930 exchangeable parts, and 842 software packages. As rightly directed by key provisions of Title 10 of the U.S. Code, including Sections 2464 and 2466, it is a national imperative to have a robust organic industrial base supporting the nation's weapon systems. Without investments which assure lethality, restore readiness, properly fund and train personnel, and deliver cost effective adaptive infrastructure, we will rapidly lose our advantage.

Organic Industrial Base Plan Update

On March 7, 2019, then-Secretary Heather Wilson submitted to Congress the Air Force's report entitled *Master Plan for Organic Industrial Base Infrastructure* to optimize and reset the Air Force to the 21st Century and beyond. That plan detailed four essential dimensions for

investment – depot equipment and technology; information technology (IT) infrastructure and industrial software; facilities for overhaul and final assembly; and repair/manufacturing nodes and hidden infrastructure (utilities and transportation grid) – to support weapons systems and capabilities that keep us ahead of our peers and near-peers.

We are the most advanced Air Force in the world. As we shift toward the "Air Force We Need" with air and space fleets that include fifth-generation and beyond capabilities, it is imperative that Air Force depots and the larger defense organic industrial base optimize opportunities to stay ahead of future missions. This also ensures we maintain compliance with Core (USC Title 10 §2464) and 50/50 (USC Title 10 §2466) mandates.

As stated in the report, the Air Force committed to conduct a detailed analysis resulting in a refined 20-year strategy with an implementation plan, organize and resource an enabling infrastructure business management office, and establish/leverage an enterprise governance oversight structure. We are updating our report with refined data and expect to conclude in late Calendar Year 2020. We have a well-functioning enterprise life cycle management governance structure that our organic industrial base progress can be monitored by senior Air Force leadership. We will address challenges by optimizing our piece of the Defense organic industrial base to cost-effectively meet warfighter requirements. The results of our analysis will be rolled up to the Secretary of Defense's comprehensive strategy.

Second, we are collaborating closely with our NAVSEA, NAVAIR, U.S. Marine Corps LOGCOM, and Army Materiel Command counterparts to share lessons learned for generating a business case analysis supporting future investments.

Finally, we are moving toward an Air Force corporate strategy with a more effective long-range planning process and an organic industrial base modernization program that supports

it, to maximize the effectiveness of our six percent capital investment program strategy.

Condition Based Maintenance-Plus (CBM+)

As the Air Force struggles with a diminishing supply and manufacturing base to support aging fleets, we are accelerating use of predictive analytics such as Condition Based Maintenance-Plus (CBM+) to minimize the time a weapon system is unavailable due to unscheduled maintenance. While the Air Force Life Cycle Management Center (AFLCMC) owns the CBM+ process, Air Force Sustainment Center stands to be a primary beneficiary by incorporating new learning into more precise supply chain forecasting and improved depot processes.

The Air Force is working toward two types of analytics to enable predictive maintenance. The first is sensor-based algorithm development, which uses on board sensors to identify degraded components or systems. The second is Enhanced Reliability Centered Maintenance (eCRM), which uses historical data and current discrepancies to enable data-driven decisions through component failure forecasting, as well as provide monthly forecasts for long-range maintenance planning. We already have several beneficial examples. Within the B-1B weapon system community at Tinker AFB, we have over 40 algorithms operating across four systems. Through these, CBM+ issued 24 recommended maintenance action alerts since October 2018. This resulted in 24 parts being removed from the aircraft before they failed, not only increasing aircraft availability, but also a more efficient supply chain.

Within the propulsion arena, we use prognostic algorithms on C-5, C-17, and KC-135 aircraft which monitor engine performance. This element of CBM+ has already generated data resulting in scheduled replacement of engines, avoiding mission-impacting, unscheduled

replacements while deployed. The Air Force is likewise using CBM+ on the landing gear for four weapon systems; the algorithms identify the top common drivers which would ordinarily lead to unscheduled maintenance downtime.

This and other data are now baked into our supply computations, generating longer-term efficiencies. We utilize the data to ensure the Air Force is doing the work required to improve mission readiness, increase aircraft availability, and reduce costs. Going forward, we will broaden the use of predictive analytics across Air Force platforms. The Air Force is partnering with commercial industry and academia to accelerate our learning. And finally, our larger Enhanced Reliability Centered Maintenance effort shows great promise to capture necessary data to guide our Digital Air Force initiative and improve decision-making.

Civilian Workforce Hiring Initiatives

A key component of sustaining and modernizing legacy weapon systems is a trained and technically proficient depot workforce. One of the key elements in the 2018 National Defense Strategy is recruiting, developing, and retaining a high-quality military and civilian workforce. The Air Force Sustainment Center depends on a 78 percent civilian workforce; 89 percent if our contractor teammates are included. Our civilian Airmen serve and sacrifice for our nation as passionately as those who wear uniforms. As we evolve and adapt our weapons systems and concepts of operation, we must evolve and adapt our workforce. A fifth-generation Air Force requires a fifth-generation workforce. Requirements for a Science-Technology-Engineering-Math (STEM) educated workforce and advanced manufacturing and technical skills are ever increasing. Each weapon system we sustain brings with it an increasing requirement for software development and maintenance to perform almost every function on the aircraft, from

manipulating flight controls, interfacing with weapons, navigation and communication, and recording system health and status to name a few. Our need for scientists and engineers to sustain these software-intensive weapons systems is increasing dramatically. In addition to developing and sustaining new weapons systems, our engineers must also find ways to sustain our aging legacy systems. From understanding airframe stress, metallurgy, non-destructive inspection techniques, and reverse-engineered parts, it takes a talented pool of engineers to help us sustain our legacy Air Force. As we continue to sustain our legacy fleet, our civilian engineers are a pivotal component of readiness.

While recent authorities like Direct Hiring Authority (DHA) and Expedited Hiring Authority (EHA) have given us new tools for hiring strategies, there is an ongoing Air Force effort to continue to reduce hiring timelines. The ability to hire critical skill sets to sustain our Air Force is a strategic issue for national defense. Even so, we devote significant resources to recruiting efforts. Air Force Sustainment Center continues to look for ways to develop and deliver innovative enterprise-wide human capital strategies to drive precision recruitment and hiring sustainment. The use of DHA and EHA for the depots have allowed us to compete with industry to secure top talent. When we received the authority in FY17, the average flow days for our traditional hiring actions were 183 days. With the use of DHA and EHA, those actions now average 65 days. We rely almost solely on these hiring tools…92 percent of all external hires for Air Force Sustainment Center positions are hired through DHA. Thank you for your active role in obtaining these critical authorities and your continued support of extending their use.

Our workforce challenges are not just confined to engineers and scientists. We rely on a very large labor force of highly skilled technicians and mechanics who work in our depots and supply chain management. We are concerned our nation will not produce enough highly

skilled technicians to support the replenishment and increasing workload demands, and worry the Federal government will not be able to compete for the talent we need to recruit and retain a robust workforce. While we work very closely with vocational training centers surrounding our Air Logistics Complexes, they can only supply entry-level skills. The Air Force Sustainment Center would immediately benefit from creating an on-ramp for recently retired military personnel. These skilled journeymen provide vital, mature skill sets and years of experience that act as a buffer to develop our entry-level personnel. It is imperative for Air Force Sustainment Center to tap into these skills early and often in order to counteract retirements and support the right operational mix of candidates. A holistic approach to proactively solve this problem would he to make an exception for the 180-day waiting period in support of hiring federal wage system personnel and some lower level general schedule employees involved in the logistics and supply chain management categories. As it stands today, the 180-day waiting period continues to put Air Force Sustainment Center at a disadvantage against corporations competing for this experienced workforce.

Closing

In every instance of crisis, the Defense organic industrial base provides solutions to meet unanticipated demands. The Air Force will need Congress's help with continued investments to meet the needs of an increasingly sophisticated…contested…and lethal…battlespace in the 21st Century. As the 2018 National Defense Strategy makes clear, there is need to "invest in modernization of key capabilities through sustained, predictable budgets." We are making generational decisions now. Adequate, consistent, and predictable funding to preserve, maintain, and modernize our critical logistics and sustainment capabilities underwrite our ability to

produce readiness that guarantees that we will win whenever and wherever our nation calls. Thank you for your continued support to enable our Total Foree Airmen to drive our Joint team's readiness.

Lieutenant General Donald E. "Gene" Kirkland

Lt. Gen. Donald E. "Gene" Kirkland is the Commander, Air Force Sustainment Center, Air Force Materiel Command, headquartered at Tinker Air Force Base, Oklahoma. As the AFSC Commander, he leads 40,000 Total Force U.S. and United Kingdom airmen across three air logistics complexes, three air base wings and two supply chain wings, operating from a global network of 26 locations.

The AFSC is responsible for $26 billion in assets generating $16 billion in annual revenue. The command provides global logistics and sustainment planning, operations and command and control including agile software development and sustainment, supply chain management and execution, weapons systems maintenance, modification, repair and overhaul, as well as critical sustainment for the Air Force and Navy nuclear enterprise. The AFSC also provides mission essential support to joint and interagency operations, allies, coalition partners and foreign military sales partners.

General Kirkland entered the Air Force in 1988 through Officer Training School. He is a career aircraft and munitions maintenance officer, and has served on the logistics staff at U.S. Central Command and the Joint Staff. He also served as Executive Officer to the Chief of Staff of the Air Force and Commander of the Oklahoma City Air Logistics Complex. Prior to his current assignment, he was the Director of Logistics at Headquarters U.S. Air Force.

EDUCATION
1987 Bachelor of Science, Physics, University of Florida, Gainesville
1990 Master of Science, Administration, Central Michigan University, Mount Pleasant
1994 Squadron Officer School, distinguished graduate, Maxwell Air Force Base, Ala.
1999 Air Command and Staff College, Maxwell AFB, Ala., by correspondence
2000 College of Naval Command and Staff, distinguished graduate, Newport, R.I.
2000 Master of Arts in National Security and Strategic Studies, Naval War College, Newport, R.I.
2002 Department of Defense Executive Leadership Development Program
2004 Air War College, Maxwell AFB, Ala., by correspondence
2006 Industrial College of the Armed Forces, Fort Lesley J. McNair, Washington, D.C.
2006 Master of Science, National Resource Strategy, National Defense University, Fort Lesley J. McNair, Washington, D.C.
2011 National Security Studies Program, The Elliott School of International Affairs, George Washington University, Washington, D.C.
2018 Driving Government Performance, Harvard Kennedy School, Harvard University, Cambridge, Mass.

ASSIGNMENTS
June 1988 - September 1990, various munitions officer positions, 5th Munitions Maintenance Squadron, Minot Air Force Base, N.D.
October 1990 - March 1991, Officer in Charge, Munitions Branch, 51st Equipment Maintenance Squadron, Osan Air Base, South Korea
April 1991 - October 1991, Assistant Officer in Charge, 19th Aircraft Maintenance Unit, 51st Aircraft Generation Squadron, Osan AB, South Korea
October 1991 - October 1993, Officer in Charge, Munitions Flight, and later, Maintenance Supervisor, 96th Maintenance Squadron, Dyess Air Force Base, Texas
October 1993 - May 1994, Chief, Quality Assurance, 7th Logistics Group, Dyess AFB, Texas
June 1994 - July 1994, Student, Logistics Plans Officer Course, Lackland AFB, Texas
August 1994 - May 1997, Deputy Chief, and later, Chief, Logistics Plans Flight, 3rd Logistics Support Squadron, Elmendorf AFB, Alaska
June 1997 - July 1999, Joint Munitions Staff Officer (J4), Directorate of Logistics, U.S. Central Command, MacDill AFB, Fla.

August 1999 - June 2000, Student, College of Naval Command and Staff, Newport, R.I.
June 2000 - May 2002, Commander, 28th Munitions Squadron, Ellsworth AFB, S.D.
May 2002 - July 2005, Staff Officer, and later, Chief, Readiness Branch (J4), Directorate of Logistics, the Joint Staff, the Pentagon, Arlington, Va.
August 2005 - June 2006, Student, Industrial College of the Armed Forces, Fort Lesley J. McNair, Washington, D.C.
June 2006 - June 2007, Deputy Commander, 379th Expeditionary Maintenance Group, Al Udeid AB, Qatar
July 2007 - October 2007, Chief, Munitions Division (A4), Directorate of Logistics, Headquarters Air Combat Command, Langley AFB, Va.
November 2007 - July 2009, Commander, 5th Maintenance Group, Minot AFB, N.D.
August 2009 - December 2009, Special Assistant to 9th Air Force Commander, Langley AFB, Va.
January 2010 - June 2011, Commander, 633rd Air Base Wing, Joint Base Langley-Eustis, Va.
July 2011 - August 2012, Executive Officer to the Chief of Staff, Headquarters U.S. Air Force, the Pentagon, Arlington, Va
September 2012 - March 2015, Commander, Oklahoma City Air Logistics Complex, Tinker AFB, Okla.
April 2015 - August 2017, Director of Logistics, Civil Engineering and Force Protection, Headquarters Air Force Mobility Command, Wright-Patterson AFB, Ohio
August 2017 - July 2018, Director of Logistics, Deputy Chief of Staff for Logistics, Engineering and Force Protection, Headquarters U.S. Air Force, Arlington, Va.
August 2018 – present, Commander, Air Force Sustainment Center, Tinker AFB, Okla.

SUMMARY OF JOINT ASSIGNMENTS
June 1997 - July 1999, Joint Munitions Staff Officer (J4), Directorate of Logistics, U.S. Central Command, MacDill Air Force Base, Fla., as a captain
May 2002 - May 2004, Staff Officer, and later, Chief, Readiness Branch (J4), Directorate of Logistics, the Joint Staff, the Pentagon, Arlington, Va., as a lieutenant colonel

MAJOR AWARDS AND DECORATIONS
Distinguished Service Medal
Legion of Merit with two oak leaf clusters
Bronze Star Medal
Defense Meritorious Service Medal with oak leaf cluster
Meritorious Service Medal with two oak leaf clusters
Joint Service Commendation Medal
Air Force Commendation Medal with oak leaf cluster

EFFECTIVE DATES OF PROMOTION
Second Lieutenant Feb. 23, 1988
First Lieutenant Feb. 23, 1990
Captain Feb. 23, 1992
Major July 1, 1999
Lieutenant Colonel March 1, 2002
Colonel Aug. 1, 2007
Brigadier General May 2, 2013
Major General March 7, 2017
Lieutenant General Aug. 7, 2018

(Current as of August 2019)

STATEMENT

OF

MAJOR GENERAL JOSEPH F. SHRADER

COMMANDING GENERAL, MARINE CORPS LOGISTICS COMMAND

BEFORE THE

HOUSE ARMED SERVICES SUBCOMMITTEE ON READINESS

ON

THE UNITED STATES MARINE CORPS ORGANIC INDUSTRIAL BASE

21 NOVEMBER, 2019

Introduction

Chairman Garamendi, Ranking Member Lamborn and distinguished members of the House Armed Services Subcommittee on Readiness, I appreciate the opportunity to testify on an important aspect of the United States Marine Corps' warfighting capability - a ready Organic Industrial Base with the Marine Corps' Depot as its centerpiece.

As we look to the future, we see our Depot as a pacesetter in providing state-of-the-art operational-level logistics support to the Fleet Marine Force. To achieve this vision, we are focusing our modernization efforts in four areas: depot maintenance, infrastructure and facilities, innovation, and our workforce.

The Marine Corps' ground weapons systems depot is centrally managed by the Marine Depot Maintenance Command. This command comprises two production plants -- one in Albany, Georgia and the other in Barstow, California. Each production plant delivers distinct capabilities to the Marine Corps' organic industrial base while reinforcing the broader national defense industrial base. Both plants sustain a competitive capability to repair some of our most valuable ground combat weapon systems. Geography is an important consideration as our Depot is strategically located near our major east and west coast operational commands in California and North Carolina, and is co-located with our supply management and distribution centers in order to provide integration and efficient movement of equipment -- including war reserves. Our Barstow production plant is situated with one of the largest railheads in the Department of Defense and astride major interstate highways. Our Albany production plant, in addition to being co-located with the Marine Corps Logistics Command's headquarters, also has access to robust transportation infrastructure as well as major east coast seaports such as Charleston, South Carolina and Jacksonville, Florida — home to the Marine Corps' maritime prepositioning program. As you can see, the Marine Corps strategically placed its Depot to provide the most effective and efficient operational-level logistics in terms of time and distance to support the Fleet Marine Force.

Depot Maintenance

The operations and maintenance funding Congress provides is essential to Marine Corps readiness. To optimize the impact of those funds, we employ a blend of conditions and time-based maintenance processes, informed by a set of warfighting value matrices, to prioritize our depot maintenance efforts.

Naval Logistics Integration also plays an important role in how we conduct depot-level maintenance. Initiatives such as Department of the Navy Enterprise Resource Planning, Industrial Supply Initiative, and the Naval Operational Business Logistics Enterprise are just a few examples.

We are establishing an Additive Manufacturing Center of Excellence, which includes multi-metals 3D printing and cold spray technologies that will aid the naval force with operational reach, prolonged endurance, and freedom of action.

New technologies such as robotics and automation that not only increase capacity and throughput, but also improve workplace safety and ergonomics are incorporated into planned Fiscal Year 20 Military Construction projects.

Infrastructure and Facilities

In response to the 2019 National Defense Authorization Act, the Marine Corps submitted an Organic Industrial Base report that detailed our long-term facilities strategy. Our Organic Industrial Base facilities plan is a roadmap necessary to provide weapon systems maintenance, storage, sustainment and pre-positioning capabilities now and in the future. It consists of three phases and guides investments through 2045.

We have begun to execute the first phase of our plan, which aims to alleviate process constraints and increase production capacities. To achieve these objectives, I have prioritized the construction of a Robotic Combat Vehicle Coatings facility, which will alleviate the most constraining industrial process at our production plant in Albany, Georgia. I am also prioritizing investments to revitalize the capital equipment that is central to efficient industrial processes and will posture our OIB to support future weapons systems.

Through the second and third phases, we will upgrade and expand our main production facilities, increase the automation of our industrial processes, and divest or consolidate obsolete buildings. Our comprehensive industrial infrastructure plan clearly articulates the Marine Corps' long-term vision, priorities, and pathway necessary to equip and sustain the industrial facilities that support our Marines and enhance the combat readiness of our Corps.

Finally, I want to thank Congress for the approved facility projects in Georgia and California, and for your steadfast support to our storm recovery efforts from the tornado strike in January 2017, and through Hurricanes Michael and Dorian.

Innovation

The 38th Commandant's Planning Guidance directs us to re-establish our primacy within the DoD as the most innovative and revolutionary thinkers. At the Service level, our Marine Corps Warfighting Lab, Next Generation Logistics (NexLog), and Installation-Works (I-Works) organizations are at the cutting edge of military innovation. These organizations are collaborating with an array of internal and external partners through four major categories. One of those categories is additive manufacturing, and now across the Marine Corps, innovative Marines become "producers" with the widespread use of 3D printers.

We are also working with the Office of the Undersecretary of Defense for Research and Engineering to develop resilient 5G enabled and enhanced broadband, low latency information, and communications capabilities. When coupled with our Smart Warehouse, augmented reality and robotics concepts, the large-scale 5G experimentation promises to increase efficiencies and improve readiness.

We also seek innovation and improvement through partnerships with academia. Marine Corps Logistics Command's relationships with institutions such as Georgia Institute of Technology and Pennsylvania State University are examples of how we are working to leverage "best in class" supply chain, robotics and analytics.

Workforce

The 2018 National Defense Strategy rightly identifies recruiting, developing, and retaining a high-quality workforce as essential for warfighting success. This is true for our Depot. We must continue to improve our ability to recruit, retain, and develop skilled artisans and employees to accomplish our mission. In order to do this, we have developed a strategic plan - Workforce of the 21st Century. The plan has six goals. The first goal is to hire the right people as hiring actions are among the most important decisions we make. The second goal is to enable the workforce by providing relevant training and education. The third and fourth goals are focused on talent management in that they describe how we shape and manage the workforce to ensure we are aligned with current priorities and prepared to meet future challenges. The fifth goal is consistent engagement through two-way communication. The sixth and final goal is to maintain a safe, high quality work environment.

In addition to our six strategic goals, we are very grateful to Congress for providing Direct-Hire Authorities. These authorities have enabled us to compete on par with the private sector to quickly hire the best and most talented people our local communities have to offer.

Conclusion

A ready Organic Industrial Base is a vital component of Fleet Marine Force readiness. As described in this testimony, the Marine Corps has a plan to modernize and maintain the relevance of its organic industrial base. Congressional support is essential to this plan, and I want to thank the subcommittee for its continued assistance.

Major General Joseph F. Shrader
Commanding General, Marine Corps Logistics Command

Major General Shrader, a native of Princeton, West Virginia, enlisted in the Marine Corps in January 1981. He served for three years with 3rd Battalion, 5th Marines as an infantryman and was promoted to corporal. After his enlistment, he returned to West Virginia where he earned an associate degree in Mechanical Engineering Technology and a Bachelor of Science degree in Electrical Engineering Technology from Bluefield State College. He was commissioned a second lieutenant through the Platoon Leaders Course commissioning program in 1989.

Upon graduation from The Basic School, Major General Shrader attended the Artillery Officer Basic Course in Fort Sill, Oklahoma, and then reported to 5th Battalion, 10th Marines (5/10). While assigned to 5/10, Major General Shrader served as a Guns Platoon Commander, Battery Executive Officer and Battery Commander, and deployed to Southwest Asia during operations Desert Shield, Desert Storm and Provide Comfort.

Major General Shrader reported in June 1993 to Marine Corps Recruit Depot, Parris Island, South Carolina, where he served as a recruit training company Series Commander, Company Executive Officer and Company Commander. He then attended the Field Artillery Advanced Officer Course in Fort Sill, and in August 1996, reported to the III Marine Expeditionary Force (III MEF), Okinawa, Japan. While there, he was promoted to major and served as Assistant Operations Officer, 4th Marine Regiment, and Battalion Operations Officer and Battalion Executive Officer with 3rd Battalion, 12th Marines.

He then attended the Marine Corps Command and Staff College on Marine Corps Base Quantico, Virginia, where he earned a Master of Military Studies degree. In June 2001, Major General Shrader was transferred to Marine Corps Systems Command where he served as the Armor and Fire Support Targeting Team Lead.

Upon promotion to lieutenant colonel, he was reassigned to serve as the Deputy Program Manager for the Expeditionary Fire Support System.

In July 2004, he returned to III MEF where he served as 12th Marines Operations Officer and later that same year deployed to Sumatra, Indonesia, in support of Operation Unified Assistance. In May 2005, Major General Shrader received orders to stand up 5th ANGLICO, III MEF. In early 2007, he deployed in support of Operation Iraqi Freedom. In October 2007, he relinquished command of 5th ANGLICO and was reassigned as the III MEF Force Fires Coordinator.

In August 2009, he was promoted to Colonel after graduating from the Industrial College of the Armed Forces at National Defense University in Washington, D.C. He was then designated primary military occupational specialty (8061) Acquisition Professional Officer and assigned to Marine Corps Systems Command. Over the next four years he served as Product Group Director for Combat Equipment and Support Systems, and Product Group Director and Program Manager for Armor and Fire Support Systems.

In May 2013, he transferred to the Office of the Deputy Assistant Secretary of the Navy for Expeditionary Programs and Logistics Management to serve as Chief of Staff. From July 2014 to May 2018, he served as Commander, Marine Corps Systems Command Quantico, VA. Major General Shrader is currently assigned as the Commanding General of Marine Corps Logistics Command in Albany, GA.

WITNESS RESPONSES TO QUESTIONS ASKED DURING THE HEARING

NOVEMBER 21, 2019

RESPONSE TO QUESTION SUBMITTED BY MR. SCOTT

General KIRKLAND. Enacted in 1964, the 180-day policy was waived after a state of national emergency was declared on 14 September 2001. After that, the Air Force was afforded the flexibility to appoint retired military members within 180 days of retirement without needing a waiver. On 23 December 2016, a new DOD requirement took effect as part of the National Defense Authorization Act (NDAA) FY17. This NDAA mandated military retirees seeking to enter civil service in the Defense Department now require a waiver if they are within 180-days following their official date of retirement. The Department of Defense Instruction, Number 1402.01, dated 9 September 2007, paragraph 3.3 defines Retired Member of the Armed Forces as a "member or former member of the Armed Forces who is entitled to retired, retirement, or retainer pay." Furthermore, HQ AF/A1, MFR, dated 19 April 2019, b. Applicability, specifically states, "the 180-day waiting period applies to active/retiring/retired members of the Armed Forces (to include Guard and Reserve retirees) and those who have medically retired and are entitled to retired, retirement, or retainer." Since all supporting documentation and guidance provided addresses all members and former members of Guard and Reserve an assumption can be made that there is no distinction when it comes to defining Guard and Reserve retirement entitlements therefore the 180-day waiver process is applied equally to part-time and full-time Reserve and Guard personnel. [See page 17.]