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THE HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON READINESS

STATEMENT OF

VICE ADMIRAL WILLIAM J. GALINIS
COMMANDER, NAVAL SEA SYSTEMS COMMAND

REAR ADMIRAL ERIC H. VER HAGE
COMMANDER, NAVAL REGIONAL MAINTENANCE CENTER
DIRECTOR, SURFACE SHIP MAINTENANCE & MODERNIZATION

REAR ADMIRAL HOWARD B. MARKLE
DEPUTY COMMANDER, LOGISTICS, MAINTENANCE & INDUSTRIAL OPERATIONS

BEFORE THE

SUBCOMMITTEE ON READINESS

HOUSE ARMED SERVICES COMMITTEE

ON

SHIP AND SUBMARINE MAINTENANCE:
SUSTAINMENT CONSIDERATIONS
FOR A CHANGING FLEET

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Chairman Garamendi, Ranking Member Lamborn, and distinguished members of the Subcommittee, thank you for the opportunity to testify about submarine, aircraft carrier, and surface ship maintenance. The Navy's ability to generate credible and reliable presence during this era of great power competition depends on our ability to deliver combat-ready warships out of maintenance availabilities on time. As you have heard over the years, the Navy has been working to improve our on-time record and though we have seen recent improvements they are not enough. We need to get better now. The Naval Sea Systems Command (NAVSEA) is working to fully harness the amazing talent of our workforce to move forward on a number of interconnected efforts with a sense of urgency and steadfast determination. NAVSEA's top mission priority is the delivery of combat power to the Fleet through the on-time delivery of combat-ready ships, submarines, and systems because we know that it is our forward deployed warships that keep our adversaries at bay.

PUBLIC SHIPYARDS

In recent years, the Navy has undertaken a number of initiatives to build capacity at the public shipyards in order to address the 25 percent increase in planned workload since 2010. The size of the organic Naval Shipyard workforce has grown by approximately 10,000 people, resulting in a current strength of just over 37,000 civilian employees to match this growth. To train these new hires more efficiently, the shipyards transformed how they train their new employees through learning centers that use virtual learning tools and hands-on work. These initiatives aim to reduce the time required to train employees by more than 50 percent enabling new workers to productively contribute to ship maintenance sooner. On the maintenance planning side, the shipyards enhanced analytics capabilities through competency development and deployment of analytics labs and analysis tools to allow for earlier identification of problems, more robust problem analysis, and the development of targeted solution sets. Finally, we continue to work with our Secretariat, Chief of Naval Operations and Fleet partners to modify the Navy's maintenance planning, programming, budgeting, and execution process in a way that

accounts for some level of workload uncertainty, as well as a more efficient utilization of the workforce.

Since the start of Fiscal Year 2020, the Navy has seen positive results across the naval shipyard enterprise as a result of these integrated efforts. Portsmouth Naval Shipyard (PNSY) undocked the USS California (SSN 781) ahead of schedule and completed its follow-on steaming program milestone five days early. Norfolk Naval Shipyard's (NNSY) Off-Yard Carrier Group completed three successful on-time maintenance availabilities, performing repairs on many vital systems, which allowed the USS Dwight D. Eisenhower (CVN 69) to deploy on time. Puget Sound Naval Shipyard and Intermediate Maintenance Facility (PSNS & IMF) executed maintenance efforts on four carriers simultaneously and successfully completed all on time. Pearl Harbor Naval Shipyard & Intermediate Maintenance Facility (PHNSY & IMF) workforce completed all planned maintenance and modernization work on USS Missouri (SSN 780) five days early, representing the first time any shipyard has completed two consecutive Virginia-class extended dry-docking selected restricted availabilities ahead of schedule.

At the enterprise-level, the public shipyards reduced days of maintenance delay by over 75 percent, from 1,528 total days of delay in Fiscal Year 2019 to 360 total days of delay in Fiscal Year 2020. Important to this reduction was the Navy's ability to mobilize 1,309 Navy Reserve Sailors from the Surge Maintenance (SurgeMain) program to help mitigate COVID-19 impacts. Since the start of the mobilization, SurgeMain Sailors have worked with their civilian counterparts on maintenance availabilities, provided valuable technical production labor to perform machinery maintenance, and temporarily filled supervisory roles within the shipyard. To date, the Navy has maintained the Fiscal Year 2021 workload levels and, unlike previous years, has yet to carryover workload from the current fiscal year into the next fiscal year despite the pandemic.

Leveraging these recent successes, the Navy continues to apply lessons learned across the four naval shipyards to ensure consistent on-time completion of CNO maintenance availabilities. To further inform this effort, NAVSEA is conducting an in-process review in coordination with our Fleet and Naval Reactors partners to develop an integrated naval shipyard improvement plan to shorten maintenance periods and increase operational availability.

The Navy is also into its third year of the Shipyard Infrastructure Optimization Program (SIOP). The 2018 SIOP report to congress outlined proposed a \$21 billion, 20-year effort that will transform the shipyards, originally designed to build wind and coal-powered ships, into 21st century shipyards dedicated to executing complex maintenance availabilities on the Navy's nuclear-powered aircraft carriers and submarines. The Navy is working towards a detailed analysis to support updated cost estimates. 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 increase productivity and safety.

SIOP has three phases. Phase I completed with the establishment of a dedicated SIOP program office within NAVSEA, with blended staff from Commander, Naval Installations Command (CNIC) and Naval Installations Command (NAVFAC) to facilitate integration and communications. Phase II, which is currently underway, focuses on executing the enhanced industrial engineering analysis and the modeling and simulation of industrial processes at the naval shipyards. The Navy is building dynamic "digital twins" for the public shipyards that can be manipulated to move work functions and entire buildings to different locations within the shipyards and measure the impact to throughput and efficiency. The digital twins will allow the Navy to build Area Development Plans (ADPs) that will guide infrastructure modifications within the shipyard to enhance productivity. Concurrently, SIOP is executing dry-dock recapitalization, facility restoration and modernization, and capital equipment investments that support dry-dock availabilities and the long-term optimization program. Phase III will prioritize, develop and execute projects identified during Phase II. Phase III will see most of the Military Construction (MILCON) and larger efforts. Critical to this effort is the Navy's ability to concurrently execute SIOP while also conducting planned maintenance availabilities.

The program is currently working a comprehensive plan with its stakeholders on the feasibility and ability to accelerate SIOP implementation. The team is not only looking at the cost aspects, but also impact on the following: planned maintenance availabilities; whether or not there is enough construction and material capacity in and around the four naval shipyards to support an accelerated SIOP production schedule; possible impacts to Sailors; the ability of

private shipyards to take on additional maintenance work while also building the multiple Virginia class attack submarines, the first Columbia Class SSBNs, and the Gerald R. Ford Class aircraft carriers; and any authorities required to increase SIOP's velocity. We will be happy to share the team's findings with this Committee once they are finalized.

While SIOP is a multi-year effort to modernize the naval shipyards' outdated infrastructure, we are working right now to improve the way the shipyards execute their business through the Public Shipyard Improvement Plan (PSIP). The PSIP is an overarching plan that integrates all public shipyards improvement activities, including the efforts of Performance to Plan – Shipyards (P2P-SY) and Naval Sustainment Systems – Shipyards (NSS-SY), that targets under-performing areas or processes and then targets specific improvement opportunities with the goal of increasing throughput and recovering readiness while also reducing maintenance costs. This effort includes the development of a 15-year workload plan that uses current baseline performance to determine the duration reductions required to meet Fleet requirements. The 15-year plan is currently under construction but, as with the SIOP program timeline acceleration, NAVSEA will be happy to share its final product with this committee.

Shipyard P2P is a data analytics-driven effort that measures performance in key driver areas to predict and make adjustments to yield desired outcomes. Utilizing P2P-identified key performance drivers allows the Navy to apply focused effort to improve performance and planning effectiveness to address workload instability, reduce growth work, and align repair and modernization processes. Although early in the process, the Navy is seeing initial positive movement in a number of driver metrics including schedule execution efficiency and unplanned work. The lessons learned from public shipyard execution will be applied to submarine availabilities performed in private yards to improve outcomes in all availabilities.

Utilizing the analytic results of the P2P effort described above, and leveraging the recent success of Naval Sustainment Systems – Aviation, the shipyard maintenance enterprise is transforming how the shipyards do business in order to create more production capacity and improve productivity to improve the on-time delivery of submarines and aircraft carriers out of maintenance availabilities. Naval Sustainment Systems – Shipyard (NSS-SY) is an all-shipyards, all-hands effort that deploys industry and government best practices across the four

public shipyards over the next three years to focus on: improving planning and change management, improving supply chain management, improving/optimizing business practices, developing an effective and efficient total workforce, and improving production cost and schedule performance. NSS-SY seeks to identify methods for rapid development in these areas, test these methods and, if successful, share these methods across all four shipyards.

NSS-SY is not, however, limited to seeking improvements solely within the shipyard enterprise. Utilizing a framework to 'get real' - understanding our current levels of performance; and then to 'Get Better' – improving our cost and schedule performance, NSS-SY is challenging Navy leadership at the highest levels to identify and collaborate on solutions to Navy-wide problems that have the greatest impacts on the shipyards. With pilot project and process improvement initiatives beginning earlier this year, we are already benefitting from more targeted improvement plans that achieve on-time delivery. Our desired end state is to deliver all availabilities on-time or early in order to provide the Fleet additional operational availability.

The Navy and its four organic shipyards are working to deliver Combatant Commanders the high-end warships they need to ensure peace or win in war. Combined, SIOP, P2P, and NSS-SY will fundamentally shift how the Navy plans and executes major submarine and aircraft carrier maintenance availabilities to dramatically improve their on-time delivery to the Fleet.

Currently, the Navy has three Los Angeles Class attack submarines undergoing maintenance in private shipyards and one in detailed planning. These are the first planned major maintenance availabilities the private shipyards have executed in more than a decade and both they and the Navy recognize that they were ill-prepared to execute the work. Submarine construction and maintenance require different tools, processes, and skillsets and shipyards lacked the maintenance-specific expertise required to properly plan and execute their first availabilities. Consequently, these ships have been delayed and experienced significant cost and schedule overruns. To support the private shipyards, the Navy placed experienced personnel from the public shipyards embedded at the private yards to share best practices to benefit current and future work.

PRIVATE SHIPYARDS

The Navy has made significant improvements to surface ship readiness, completing 67 percent of Fiscal Year 2020 CNO Availabilities on time and reducing days of maintenance delay by 84 percent compared to Fiscal Year 2019 after the Navy re-baselined completion dates based on improved scheduling processes. To continue the improving trends, the Navy is taking a Surface Warfare Enterprise-wide approach informed by the Navy's Performance to Plan (P2P) analysis to improve sustainment, maintenance, and modernization outcomes. The lines of effort to improve private sector maintenance outcomes include targeted initiatives to improve both planning and execution of CNO Availabilities, underpinned by data-driven analysis to identify key drivers of maintenance delays and close critical performance gaps by targeting the most impactful levers.

Proper planning underpins successful ship maintenance and modernization availabilities. To improve and refine availability planning efforts, the Navy is undertaking Directed Maintenance Strategies (DMS) to front-load planned repairs on systems and equipment that have historically resulted in growth and new work. Additionally, the Navy is using DMS to improve forecasting for acquisition of long-lead time materials (LLTM), which, along with other material procurement initiatives, significantly increase on-time LLTM delivery prior to the start of an availability which is a critical enabler of on-time availability performance. LLTM for ship repair work was delivered on-time in 95 percent of CNO Availabilities over the past year, a 10 percent improvement from the prior year.

The Navy is also improving maintenance planning by refining the models used to forecast duration availabilities to ensure they match the scope of work. The new model, Availability Duration Scorecard 3.0 (ADS 3.0), incorporates additional factors such as complexity of the work, age of the ship, and the ship's life-cycle health to provide a more realistic demand signal to our industry partners. In addition, the Navy worked closely with industry to update contract data requirements to improve our understanding of private shipyard capacity, manning, and workload which supports Navy efforts to tailor workload schedules to ensure industry has a stable and predictable forecast of future work without overwhelming shipyard capacity. The Navy is also using a twice-a-year process called Surface Master Plan to take advantage of flexibility in

operational schedules and plan maintenance availabilities to level load maintenance workload at ports. Providing steady and predictable workload is foundational to industry's ability to support port hiring and capital investments needed to support our fleet.

The surface ship maintenance enterprise is also improving predictable demand signals by implementing contracting strategies that award multiple availabilities under a single, "bundled" solicitation. Horizontal bundling groups at least two back-to-back availabilities in a single contract while vertical bundling allows the Navy to contract multiple concurrent availabilities in a single solicitation. By bundling availabilities, industry is provided greater awareness of upcoming work, instilling confidence for future investment to grow capacity, including workforce expansion and infrastructure improvements. The Navy has also accelerated our milestones with a goal of awarding all availability contracts 120 days prior to the start of an availability (A-120), an increase from the earlier 60-day award goal, to give industry sufficient time to align its workforce, plan the work, procure long-lead time materials, and align its subcontractors prior to the start of an availability. The Navy's average thus far in Fiscal Year 2021 is A-107, with a goal to achieve an average of A-120 by the end of this year. Industry feedback indicates that the additional planning time does indeed improve their ability to properly plan their efforts.

The Navy has also partnered with industry to implement initiatives that are improving performance in availability execution. The Schedule Model Review (SMR) initiative brings together a combined project team of Navy and industry stakeholders prior to the start of an availability and throughout its execution to review the production schedule and proactively identify and mitigate risks. This initiative is reinforcing a culture of trust and collaboration across industry and government partners. While early in its implementation, the 18 CNO Availabilities in Fiscal Year 2020 that included SMR averaged ten fewer days of maintenance delay than availabilities without the reviews. Additionally, a government checkpoint reduction pilot on each coast demonstrated that the Navy could reduce the administrative burden of checkpoints without sacrificing technical rigor and compliance. This pilot was expanded to all CNO Availabilities in Fiscal Year 2021, reducing checkpoints within Navy standard items by 48

percent and 53 percent of checkpoints within mandatory class maintenance plan requirements for surface ships.

The Navy is also seeing positive early results from the pilot program which Congress created in Fiscal Year 2020 to fund Pacific Fleet CNO Availabilities with multi-year Other Procurement, Navy (OPN) funding. This Pilot allows the Navy to efficiently use surface ship maintenance funding through the entirety of the fiscal year without the pressure of expiring funds, enabling us to address emergent repair requirements that occur toward the end of the fiscal year. For example, the Navy was able to award the USS Chung Hoon (DDG 96) availability in Fiscal Year 2020, supporting the Navy's goal of awarding contracts at A-120. In addition, OPN funding allows the Navy to obligate funds in the second or third year of the appropriation, when work on most CNO Availabilities is complete and upward obligation situations most often arise. Being able to obligate OPN funds helps mitigate the challenges and delays associated with funding emergent growth and new work, which can cause significant execution delays.

CONCLUSION

To win in an era of great power competition, NAVSEA must deliver submarines, aircraft carriers, and surface ships to the Fleet on time. The efforts underway in both the public and private sectors are purpose-built to improve NAVSEA's ability to provide the warfighters with credible and reliable ships and systems. Through the combination of both short and long-term projects, the Navy will see significant ship maintenance improvements. What's more, NAVSEA will continue to utilize available data to find ways to improve performance, share lessons learned, and reduce costs.