Naval Reactors Awards Naval Nuclear Laboratory Contracts to Fluor Marine Propulsion

WASHINGTON – Naval Reactors, a joint program of the Department of Energy (DOE) and the Department of the Navy (DON), has selected Fluor Marine Propulsion LLC (FMP) as the new DOE and DON contractor for the Naval Nuclear Laboratory (NNL), Naval Reactors Public Affairs said in July 13 release. FMP, a limited liability company, is a wholly owned, special-purpose subsidiary of Fluor Corp.

Naval Reactors conducted a full and open competition for the new NNL contracts. The estimated combined award value of these contracts is approximately $30 billion over ten years if all options are exercised.

The current DOE and DON contracts for the NNL with Bechtel Marine Propulsion Corp. expire on Sept. 30. An approximate three-month transition period commenced on July 12, which will provide stability for the workforce employed under the Bechtel NNL contracts and ensure essential continuity of operations for vital Naval Reactors work. The contracts awarded to FMP represent the best value to the government and will provide 10 years of stability for the NNL.

The NNL comprises the DOE-owned locations and personnel responsible for developing advanced naval nuclear propulsion technology, providing technical support to ensure the safety and reliability of our nation’s naval nuclear reactors, and training the Sailors who operate those reactors in the U.S. Navy’s submarines and aircraft carriers. The NNL includes the Bettis and Knolls Atomic Power Laboratories, the Kenneth A. Kesselring Site and the Naval Reactors Facility, which have supported the nation since 1946.

Zumwalt DDG's Gun Munition Still on Hold

ARLINGTON, Va. – The Navy's program executive offer in charge of most shipbuilding said that development of a new munition for the Advanced Gun System (AGS) on the DDG 1000 Zumwalt-class ship continues to be on hold.

Speaking July 11 at a Navy League Special Topic Breakfast, Rear Adm. William J. Galinis, program executive officer, Ships, said a replacement for the Long-Range Land-Attack Projectile (LRLAP) developed for the AGS "is on hold at this point."

The LRLAP was canceled in part for its high cost given economies of scale when the DDG 1000 program was reduced from 32 planned ships to only three, leaving the AGS without a round available in quantity.

"Last fall, the Navy made the decision that we were going to transition [the Zumwalt] from a primary land-attack mission to more of a surface strike mission set," Galinis said. "As we brought this platform on line and learned about the capability of the platform, it fits that mission requirement very well. There are some changes we need to make to the ship, but they are not significant."

Galinis said the Navy has had challenges with getting the desired ranges from rounds fired from the AGS.

"Last summer, we had essentially a fly-off of four or five different rounds," he said. "We've taken the analysis of those test firings. It's kind of on hold at this point as we transition to surface strike."

Galinis said that USS Zumwalt is expected to return to sea at the end of next month following installation of its combat systems in San Diego. The second hull, Michael Monsoor, is in Bath Iron Works shipyard in Maine for a post-delivery availability. One of its main turbine engines suffered a casualty and will be replaced.

The third hull, Lyndon B. Johnson, is expected to be launched by the end of the year and to begin sea trials by the end of 2019.

PEO Ships: 'A Little Risk,' 'Evolutionary Approach' to Shipbuilding Needed

ARLINGTON, Va. — The Navy admiral in charge of building most of the Navy's ships advocates taking a bolder approach to ship design, but one that also leverages existing hulls and technology to incrementally develop new ship classes.

Speaking July 11 to an audience at a Navy League Special Topic Breakfast, Rear Adm. William J. Galinis, program executive officer (PEO), Ships, said the Navy spending "far too much time studying a problem in trying to minimize risk really gets us to an unresponsive [acquisition] system."

Galinis said that the Navy's top leadership is encouraging the acquisition community to "take a little bit of risk" given the current sense of urgency in the renewed climate of great power competition.

"Include that in your business practices," he urged the

defense industry representatives at the event.

Galinis said the Navy is taking a more “evolutionary approach to new ship classes [and] introducing new technology, leveraging parent designs.”

He cited the DDG 51 Flight III program, the new guided-missile frigate program and the Flight II of the San Antonio-class amphibious platform dock ship as examples of the evolutionary approach. Another example he mentioned is the evolution of the America-class amphibious assault ships, the most recent of which – Bougainville – will feature restoration of a well deck and be equipped with the new Enterprise Air Search Radar that uses technology in common with the Air and Missile Defense Radar being installed on the DDG 51 Flight III.

Galinis pointed out the success of incrementally modernizing ships in the example of the third Arleigh Burke guided-missile destroyer USS Barry (DDG 53), which emerged from a recent modernization availability with the same capability of USS John Finn (DDG 113), a new ship commissioned last year.

He said Navy’s Future Large Surface Combatant design will represent “more of an evolutionary approach as we migrate from the DDG 51 Flight III to the Large Surface Combatant” [and] will be “operationally driven.”

The first two ships of DDG Flight III are under construction by Huntington Ingalls and Bath Iron Works.

“The revolutionary piece certainly plays a part,” Galinis said, referring to new technologies that are being developed for shipboard use. The Navy has been developing laser weapons, electromagnetic rail guns and integrated power systems for newer ships.

MDA Director: Ship-based Missile Defense More Capable, Flexible than Land-based Options

WASHINGTON – The director of the Missile Defense Agency (MDA) accepted the declaration by Chief of Naval Operations (CNO) Adm. John M. Richardson that he wants to get his Aegis-equipped warships out of the missile defense patrol missions, but noted that the Navy ships provide better capabilities than available land-based alternatives.

Air Force Lt. Gen. Samuel A. Greaves, the MDA director, said June 26 that he understood the concern over the limited number of the multimission ships and "the strain on the crews and equipment" of keeping the multimission-capable destroyers and cruisers deployed on the ballistic missile defense (BMD) missions.

Greaves was asked at a Mitchell Institution breakfast session about Richardson's June 12 complaint that he had six multimission ships that could go anywhere quickly to address security threats but were tied up "in a tiny little box, defending land." The CNO said those ships could be used in emergencies, but "I want to get out of the long-term missile defense business."

Richardson said the BMD mission could be taken over by land-based systems.

Greaves noted that "the CNO did verify that he is supportive of the Aegis BMD mission."

“The existing ground facilities is Aegis Ashore,” Greaves said, and there is a “question if you could deploy additional capabilities. THAAD also could do some of that,” he said, referring to the Army-operated Terminal High Altitude Area Defense antimissile system.

“But the Aegis weapon system has more capability” and can reach higher altitude targets, Greaves added. He also noted the “flexibility of the (Navy) platform to respond to the threat.”

“But, if the nation decides that we need to balance out, or increase the number of land-based capabilities,” Greaves said that with “the demonstrated ability we have, we can do it with Aegis Ashore.”

The first Aegis Ashore site in Romania was declared operational in May 2016 with a Spy-1D radar and 24 Mk 41 vertical launch systems holding Standard Missile-3 (SM-3) missiles. But the planned second site in Poland that was expected to be operational by early 2019 has run into major problems with site construction. Greaves estimated it would take another 18 months to complete.

In his address, Greaves cited his priorities of increasing the reliability of the existing BMD capabilities, increasing the engagement capabilities and keeping pace with the rapidly improve threats.

“The times for delays and studies are over,” he said.

A top priority in keeping up with the emerging threats, Greaves said, was fielding a capability against hypersonic weapons. That threat is real, based on what has been seen in actions by others, he said, apparently referring to China and Russia, which have claimed to have demonstrated ultra-high-speed weapons.

Among MDA’s planned projects, Greaves listed an upcoming

retest of the SM-3IIA missile, which failed an intercept trial last year. He said officials have isolated the problem to a part that worked nine out of the 10 previous tests and were working to ensure it will work in the future.

Virginia-Class Submarine Indiana is Delivered to U.S. Navy

NEWPORT NEWS, Va. – Huntington Ingalls Industries' Newport News Shipbuilding division delivered the newest nuclear-powered fast-attack submarine to the U.S. Navy, the company said in a June 25 release.

The future USS Indiana (SSN 789) is the 16th Virginia-class submarine built as part of the teaming agreement with General Dynamics Electric Boat and the eighth delivered by Newport News.

"We are proud to deliver Indiana to the Navy," said Dave Bolcar, Newport News' vice president of submarine construction. "For the nearly 4,000 shipbuilders who participated in construction of the boat, there is nothing more important than knowing that this vessel will support the Navy's missions."

Indiana, which began construction in September 2012, successfully completed sea trials earlier this month. The vessel will be commissioned later this year.

Virginia-class submarines are built for a broad spectrum of open-ocean and littoral missions to replace the Navy's Los

Angeles-class submarines as they are retired. Virginia-class submarines incorporate dozens of new technologies and innovations that increase firepower, maneuverability and stealth and significantly enhance their warfighting capabilities. These submarines are capable of supporting multiple mission areas and can operate at submerged speeds of more than 25 knots for months at a time.

Navy Developing Ship Coatings to Reduce Fuel, Energy Costs

ARLINGTON, Va. – It can repel water, oil, alcohol and even peanut butter. And it might save the U.S. Navy millions of dollars in ship fuel costs, reduce the amount of energy that vessels consume and improve operational efficiency.

The Office of Naval Research (ONR) is sponsoring work by Dr. Anish Tuteja, an associate professor of materials science and engineering at the University of Michigan, to develop a new type of "omniphobic" coating. This chemical coating is clear, durable, can be applied to numerous surfaces and sheds just about any liquid.

Of particular interest to the Navy is how omniphobic coatings can reduce friction drag – resistance created by the movement of a hull through water – on ships, submarines and unmanned underwater vessels.

Compare friction drag to jogging through a swimming pool. Because of the water's resistance, each stride is more difficult and requires more energy and effort.

"A significant percentage of a ship's fuel consumption [up to

80 percent at lower speeds and 40 to 50 percent at higher speeds] goes toward maintaining its speed and overcoming friction drag," said Dr. Ki-Han Kim, a program officer in ONR's Sea Warfare and Weapons Department. "If we could find a way to drastically reduce friction drag, vessels would consume less fuel or battery power, and enjoy a greater range of operations."

Tuteja's omniphobic coating could be a solution. Picture two ships sailing at the same speed – one dealing with friction drag and the other covered in a coating that causes water to bead up and slide off the hull easily. The coated vessel theoretically would guzzle less fuel because it doesn't have to fight as much water resistance while maintaining speed.

While repellent coatings aren't new, it's hard to create one that resists most liquids and is tough enough to stick to various surfaces for long periods of time. Take a Teflon-coated pan, for example. Water will bead up and roll off the pan, while cooking oil will spread everywhere.

"Researchers may take a very durable polymer matrix and a very repellent filler and mix them," said Tuteja. "But this doesn't necessarily yield a durable, repellent coating. Different polymers and fillers have different miscibilities [the ability of two substances to mix together]. Simply combining the most durable individual constituents doesn't yield the most durable composite coating."

To engineer their innovative coating, Tuteja and his research team studied vast computer databases of known chemical substances. They then entered complex mathematical equations, based on each substance's molecular properties, to predict how any two would behave when blended. After analyzing hundreds of combinations, researchers found the right mix.

The molecular marriage was a hit during laboratory tests. The rubber-like combo can be sprayed, brushed, dipped or spin-

coated onto numerous surfaces, and it binds tightly. The coating also can withstand scratching, denting and other hazards of daily use. And the way the molecules separate makes the coating optically clear.

Besides reducing friction drag, Tuteja envisions other Navy uses for the omniphobic coating – including protecting high-value equipment like sensors, radars and antennas from weather.

In addition to omniphobic coatings to lessen friction drag, ONR is sponsoring other types of coating research to prevent corrosion on both ships and aircraft and fight biofouling (the buildup of barnacles on hulls). Similar coatings can also prevent ice from forming on ships operating in cold regions, or make ice removal much easier than conventional methods like scraping.

Tuteja's team is conducting further tests on the omniphobic coating, but they plan to have it ready for small-scale military and civilian use within the next couple of years.

Commander Nominated for Resurrected U.S. Second Fleet

ARLINGTON, Va. – President Donald J Trump has nominated Vice Adm.
Andrew L. Lewis to command the new U.S. Second Fleet, to be headquartered in Norfolk, Virginia.

Lewis, a naval aviator, has served as deputy chief of naval operations for Operations, Plans and Strategy since August. He began

his career as an A-7 attack pilot and later made the transition to the F/A-18. He has flown 100 combat missions during numerous operations in Southwest Asia since 1991. He was the recipient of the Naval Air Forces Pacific Pilot of the Year award in 1996.

His command tours include Carrier Strike Group 12, deploying with USS Theodore Roosevelt; Naval Strike and Air Warfare Center; Carrier Air Wing 3, deploying with USS Harry S. Truman; Strike Fighter Squadron (VFA) 106; and VFA-15, deploying on USS Enterprise and USS Theodore Roosevelt.

The chief of naval operations, Adm. John Richardson, announced the establishment of the fleet during a change of command ceremony for U.S. Fleet Forces Command (USFF) in Norfolk, May 4, the Navy said in a release. The new fleet will report to USFF.

“Second Fleet will exercise operational and administrative authorities over assigned ships, aircraft and landing forces on the East Coast and northern Atlantic Ocean,” the release said. “Additionally, it will plan and conduct maritime, joint and combined operations and will train, certify and provide maritime forces to respond to global contingencies.

In its former iteration, Second Fleet generated forces to support

operations in the North Atlantic, as well as U.S. Sixth Fleet in the Mediterranean Sea, the Middle East Force (later U.S. Fifth Fleet) in the Persian Gulf and, occasionally, U.S. Seventh Fleet during the Vietnam War. The fleet figured prominently in the Navy's Maritime Strategy of the Cold War Era, when the Second Fleet staff would embark in a flagship for exercises in the North Atlantic and Norwegian Sea as a bulwark against the Soviet Union. The former Second Fleet was disestablished in 2011.

As noted by U.S. European Command, the Russian Navy has become more active in recent years in the Northern Atlantic and the Mediterranean Sea. U.S. Sixth Fleet in recent years has operated more frequently in the Baltic and Black Seas.

New 'Rebreather' Helps Navy Divers Beneath the Waves

ARLINGTON, Va. – The U.S. Navy diver hoisted a 60-pound life-support regulator onto his back, then donned a 30-pound metal helmet. Fellow divers connected his diving suit to an "umbilical" hose pumping in breathing gas and establishing communications with the surface. After receiving approval to hit the water, the diver descended into a large test pool at

Naval Surface Warfare Center Panama City (NSWC), Florida – home to the Navy Experimental Diving Unit.

The diver's mission: demonstrate the effectiveness of the MK29 Mixed Gas Rebreather – a new prototype system that's the first of its kind within the Navy diving community, developed by NSWC Panama City.

The technology is sponsored by the Office of Naval Research Global (ONR Global) TechSolutions program. TechSolutions is ONR Global's rapid-response science and technology program that develops prototype technologies to address problems voiced by Sailors and Marines, usually within 12 months.

"This rebreather system is an awesome opportunity to enhance the capabilities of Navy divers and accelerate their deployments," said ONR Command Master Chief Matt Matteson, who heads up TechSolutions.

Navy diving missions include underwater rescues, explosive ordnance disposal, ship hull maintenance, recovery of sunken equipment, and salvage of vessels and aircraft.

Beneath the waves, Navy divers breathe a careful mixture of oxygen and nitrogen. Below 150 feet, however, nitrogen becomes toxic – leading to nitrogen narcosis, a drowsy state that can dull mental sharpness severely and jeopardize safe return to the surface.

The solution is to replace nitrogen with helium. However, helium is expensive and hard to obtain because of recent worldwide shortages. And the Navy needs a lot of it for missions and training exercises, requiring canisters of the gas to be transported on accompanying ships or planes.

The MK29 rebreather solves these problems. Used oxygen-helium is filtered through a carbon dioxide scrubber – which removes carbon dioxide and recycles the breathable gasses back to the diver.

The result? Very little venting (giveaway bubbles) – or wasted helium.

“The MK29 decreases helium requirements by approximately 80 percent,” said Dr. John Camperman, a senior scientist overseeing the development of the MK29 at NSWC Panama City. “Divers can perform more dives with the same amount of gas or bring less helium.”

Test results suggest this system will be a major asset to Navy divers-who cannot only perform more dives, but also stay underwater longer if surface supply gas is interrupted.

The MK29 even reduces breathing noise and fogging of helmet viewports. It’s also the first piece of Navy diving equipment to feature 3D-printed titanium tubing that connects hoses from the helmet’s breathing manifold to the regulator backpack. That titanium reduces the risk of breathing hoses being sliced by sharp or jagged underwater objects.

The idea for the MK29 came from a NSWC Panama City master diver, who contacted TechSolutions seeking a way to reduce helium consumption while using newly available rebreather technology. Recognizing the expertise of Camperman and his team, TechSolutions asked them to develop the MK29.

Camperman’s research team will conduct further MK29 tests this year-and hope to see the rebreather issued throughout the fleet by next year.

Geurts Closes Navy Unmanned

Systems Secretariat, Citing Progress, Integration

ARLINGTON, Va. – The Navy has eliminated the position of its "drone czar" in its secretariat after only two and a half years, citing goals achieved and integration progress.

In an April 30 directive, James F. Geurts, assistant secretary of the Navy for Research, Development and Acquisition, directed the disestablishment of the Office of the Deputy Assistant Secretary of the Navy (Unmanned Systems) (DASN(UxS)) effective May 7.

Under then-Navy Secretary Ray Mabus, the Navy established DASN(UxS) to put appropriate bureaucratic horsepower and centralized leadership behind the development of unmanned systems. Mabus made the announcement on Oct. 27, 2015, that retired Marine Brig. Gen. Frank Kelley would be the first head of the office.

Geurts cited the completion of the Navy Department's comprehensive Unmanned Systems Roadmap and its submission to Congress as "a logical point to move forward as expressed in our Goals and Roadmap. Both documents state that the integration of manned and unmanned systems into a seamless fighting force is an objective of our unmanned systems strategy and critical to our future naval force."

Geurts said the DASN(UxS) had satisfied Mabus' Nov. 13, 2015, directive to "Treat unmanned as unmanned.

"That work continues, but that work, to integrate unmanned systems into all that we do, now belongs to all of us," Geurts said.

Earlier this year, the Unmanned Warfare Systems Division (N99) in the Office of the Chief of Naval Operations was eliminated

and its mission merged into the directorate of Warfare Integration. N99 had been established on Sept. 15, 2015, with now-retired Rear Adm. Robert Girrier as director.

Navy to Establish Type Wing for F-35C Squadrons

ARLINGTON, Va. – The Navy will establish a new type wing as commander over the service's growing F-35C Lightning II strike fighter community.

According to an internal directive, commander, Joint Strike Fighter Wing, will be established on Aug. 1 at Naval Air Station (NAS) Lemoore, California. The new wing will man, train and equip the three current F-35C strike fighter squadrons (VFAs): the two fleet replacement squadrons, VFA-101 at Eglin Air Force Base, Florida, and VFA-125 at Lemoore, plus VFA-147, an operational squadron currently in transition from the F/A-18E to the F-35C.

As more fleet squadrons make the transition to the F-35C, they will be reassigned from their current wing, Strike Fighter Wing, U.S. Pacific Fleet – also at Lemoore – or Strike Fighter Wing Atlantic at NAS Oceana, Virginia. Those wings will continue to man, train and equip the Navy's F/A-18 strike fighter squadrons.