

VTG Awarded \$116M NIWC-PAC Contract for C4ISR Engineering and Production



The Naval Information Warfare Center Pacific tests there autonomy software system on an Amphibious Assault Vehicle provided by the Amphibious Vehicle Testing Branch at the Del Mar Boat Basin on Marine Corps Base Camp Pendleton, California, Sept. 23, 2019. *U.S. MARINE CORPS Lance Cpl. Andrew Cortez*

CHANTILLY, Va. – VTG, a provider of force modernization and digital transformation solutions, has won a prime contract from the Naval Information Warfare Center Pacific (NIWC-PAC) to provide C4ISR engineering and production services to its Network Integration Engineering Facility, the company said in an April 26 release.

The indefinite delivery, indefinite quantity NIEF Production Services contract has a potential value of \$116 million over a

five-year performance period.

“For more than 50 years, VTG has provided the Naval Information Warfare Systems Command and NIWC-PAC with C4ISR installation and integration support both afloat and ashore,” said John Hassoun, VTG president and chief executive officer. “We’re proud of that longstanding partnership and excited about this new opportunity to leverage our growing C4ISR production capabilities in support of the NIEF’s mission.”

The NIWC-PAC NIEF, located at NAVWAR headquarters in San Diego, California, specializes in the rapid design and integration of commercial and government off-the-shelf products for military applications. It also provides environmental qualification testing services for those products and limited- and full-rate production. The facility was modernized in 2019 to better support the design and delivery of advanced information warfare capabilities to the fleet.

VTG will provide the NIEF with procurement, fabrication, and integration of C4ISR end items, including production units, ancillary kits, sub-systems, assemblies, sub-assemblies, modules, and spares. These end items include a full spectrum of C4ISR systems for surface ships, submarines, and shore-based applications.

Navy’s Unmanned Systems Battle Problem Features All-

Domain Sensing



A Vanilla ultra endurance land-launched unmanned aerial vehicle (UAV) undergoes operational pre-flight checks during U.S. Pacific Fleet's Unmanned Integrated Battle Problem (UxS IBP) 21 at Naval Base Ventura County, Point Mugu. UxS IBP 21 integrates manned and unmanned capabilities into challenging operational scenarios to generate warfighting advantages. *U.S. NAVY / Construction Mechanic 2nd Class Michael Schutt*

ARLINGTON, Va.— The Unmanned Systems Integrated Battle Problem (UxS IBP) conducted off the coast of California over the last week featured sensor data exchange and remote sensing in all domains from seabed to space, and involved a variety of scenarios, including swarm attacks by drones and launch and recovery of an unmanned underwater vehicle by a submarine.

Rear Adm. Robert Gaucher, director of the Maritime Headquarters for the U.S. Pacific Fleet, and Rear Adm. James Aiken, commander, Carrier Strike Group Three, and commander of the IBP, spoke about the exercise to reporters during an April

26 teleconference.

“Just yesterday, we successfully teamed air and surface manned and unmanned capability to put [an SM-6 missile] well past over the horizon from [the Arleigh Burke-class guided-missile destroyer USS] John Finn on a target and it struck the target very, very successfully,” Aiken said.

The manned/unmanned chain of events for the missile shoot was totally passive, [without] any active sensor. The target was detected by a combination of manned and unmanned platforms and a space system to locate and identify the target, track it with electronic support measures (ESM) bearings and pass the information to the John Finn, which was able to shoot the SM-6 at range, well beyond line of sight.

The admiral said the vignettes exercised during the IBP included focused warfighter vignettes, an anti-submarine warfare and surface ISR [intelligence, surveillance and reconnaissance] vignette, and an over-the-horizon strike vignette, the latter being the SM-6 event mentioned above.

Unmanned surface and air systems were used to prosecute a submarine-like target. This event included an MQ-9 SeaGuardian UAV dropping sonobuoys and up-linking data after a P-8 maritime patrol aircraft departed station.

In one scenario, a USV obtained an ESM electronic support measures bearing on a surface target, passed the locating data to the information warfare commander, who passed it to the surface warfare commander, who used a swarm drone attack against the target, a surface vessel.

During one event, a submarine was able to launch and recover an IVER-4 UUV using a torpedo tube.

“Being able to do that without divers [is] reducing a ton of risk for our divers to have to go recover ... was a big win,” Gaucher said.

He also said the IVER-4 was able to conduct its own surveillance and reconnaissance and intelligence preparation of the battlespace.

“We were also able to deliver some kinetic effects in support of undersea and seabed warfare,” he said.

Control of unmanned systems during the IBP was conducted variously from a shore site, from ships at sea, or autonomously.

“I know that unmanned can provide me video from overhead,” Gaucher said. “I know I can put a towed array sensor on a medium-sized unmanned surface vessel, and I can control it from the shore for theater ASW. ... I know that I can operate a system in and out of the torpedo tube of a submarine to support seabed warfare.”

“From a [Pacific Fleet] perspective, we were very pleased about how the Integrated Battle Problem came out, in particular with our ability to integrate unmanned [systems] into that battle problem in a contested environment,” Gaucher said, noting that 29 different unmanned technologies were part of the IBP, with about 50% surface, 30% subsurface, and 20% above the surface.

Gaucher stressed that goals for the IPB included using unmanned systems to avoid putting personnel in harm's way and to improve targeting “so we get a better solution when we launch.”

Gerald R. Ford Successfully Completes Combat Systems Ship's Qualification Trials



An evolved sea sparrow missile (ESSM) launches from one of USS Gerald R. Ford's (CVN 78) weapons sponsons during combat

systems ship qualification trials (CSSQT), April 16, 2021. CSSQT is a Naval Sea Systems Command requirement to verify that ship personnel can operate and maintain their combat systems in a safe and effective manner. Ford is underway in the Atlantic Ocean conducting its final independent steaming event of post-delivery tests and trials. *U.S. NAVY / Mass Communication Specialist 3rd Class Zachary Melvin*

ATLANTIC OCEAN – Sailors aboard the aircraft carrier USS Gerald R. Ford (CVN 78) successfully completed Combat Systems Ship's Qualification Trials (CSSQT) April 17, representing a major milestone in validating the ship's capability to defend itself and the crew, the ship's public affairs officer said in an April 24 release.

The trials, which commenced in February, consisted of five phases. The completion of the final phase, 2C, and CSSQT overall, is the culmination of years of planning, training, ingenuity and thousands of working hours for the ship's current and previous crews.

"I could not be more proud of our Sailors and their historic accomplishment," said Capt. Paul Lanzilotta, Ford's commanding officer. "CSSQT was a live-fire, hands-on opportunity to prove the self-defense capability of this fine warship. We always intend to use our embarked air wing to influence our adversaries at great ranges from the ship, but if they're able to get a shot at us, this event has shown our crew the formidable nature of our organic weapons."

According to ship's CSSQT project officer, Larry Daugherty, phase 2C was the "prove it" phase for the ship, which had already completed multiple detect-to-engage scenarios with live aircraft. In 2C, Ford faced off against rocket propelled drones capable of speeds in excess of 600 miles per hour; towed drone units (TDUs) that simulate rockets; and remote controlled, high-speed maneuvering surface targets (HSMST).

The crew countered, relying on their skills and training to operate Ford's advanced defense systems. They used the rolling

airframe missile (RAM) launchers, firing off RIM-116 missiles; the NATO launchers to fire the evolved sea sparrow missiles (ESSM); and the Mk-15 Phalanx Close-In Weapon System (CIWS) to fire armor-piercing tungsten bullets at 4,500 rounds per minute.

“The crew crushed it, firing off four missiles [two RIM-116 and two ESSM], and all of them were conducted with precision control by combat direction center (CDC) watch teams, they executed perfectly,” said Daugherty. “All command and control decisions were made correctly, and the [systems] were engaged when they were supposed to be engaged and everything went out on time.”

The ship’s defense missiles engaged the drones and CIWS took out the TDUs and HSMSTs. All three TDUs were destroyed, and two of those TDUs were ripped to shreds, according to Daugherty. All three HSMSTs were destroyed as well.

“Those Sailors not only took out the first two HSMSTs, they punched holes in them, set them on fire, and they both sank,” said Daugherty. “On the third one, the CIWS operator was so good that he actually hit the target further out than the weapon system’s maximum effective range and put it DIW [dead in the water].”

As the first crew to fire Ford’s missiles and complete this mission, it is a huge accomplishment, according to Chief Warrant Officer 2 Todd Williamson, Ford’s fire control officer, and it began with the on-load of the missiles.

“Getting missiles transported and loaded onto a ship is a big movement that requires national coordination between multiple entities,” said Williamson. “The ship’s fire controlmen and Weapons Department were the backbone of the handling evolution, while Ford’s Aviation Intermediate Maintenance Department provided material handling equipment readiness support. Our ISEA [In-Service Engineering Agents] were also

on-hand to provide oversight.”

The first few days of the nearly week-long exercises for 2C were some of the most challenging, according to Williamson. “For Weapons Department and Combat Systems Department, it was two 18-hour back-to-back days just to get set-up and complete telemetry checks,” he said.

The telemetry checks provide the capability to record the flight performance characteristics and fusing of RAM and ESSM missiles to ensure they are capable of hitting their intended targets, according to Daugherty.

There were other system checks, system and equipment tuning, ordnance uploads, preventative maintenance checks and casualty repairs, which collectively made for an extremely complex series of exercises. According to Fire Controlman 2nd Class Douglas Huyge, who has been aboard Ford for two years, his team was up for the challenge.

“I am 100% impressed with the way the division worked together to achieve this goal,” said Huyge. “People who are in leadership positions dream of dream-teams like this, we worked hard to get here and we executed the mission.”

CSSQT is the culminating combat systems test of Ford’s 18-month post-delivery test and trials (PDT&T) phase of operations. Following PDT&T this month, Ford will commence preparations for Full Ship Shock Trials, scheduled to occur during the summer, to validate the ability of new construction ships to carry out assigned missions and evaluate operational survivability after exposure to an underwater shock.

“[CSSQT] was probably the single-handed greatest feeling I’ve felt on this ship so far,” said Huyge, describing how he felt watching the live-fire evolution in CDC, after many years of hard work. “I would say what I felt was fulfillment. It was a high level of fulfillment.”

USS Gerald R. Ford is a first-in-class aircraft carrier, and the first new aircraft carrier designed in more than 40 years. The ship is underway for Independent Steaming Event 18 (ISE 18), as part of her PDT&T phase of operations.

Unmanned Capabilities Front and Center During Naval Exercise



An ADARO unmanned system interacts with the Navy's newest Independence-variant littoral combat ship USS Oakland (LCS 24) during U.S. Pacific Fleet's Unmanned Integrated Battle Problem (UxS IBP) 21. UxS IBP 21 integrates manned and unmanned capabilities into challenging operational scenarios to generate warfighting advantages. *U.S. NAVY / Mass*

Communication Specialist 2nd Class Alex Perlman

ARLINGTON, Va. – Chief of Naval Research Rear Adm. Lorin Selby declared “the state of our naval unmanned capabilities is truly unmatched,” and vowed continued support for the nation’s ongoing transition to a hybrid manned-unmanned force in the future, the Office of Naval Research (ONR) Corporate Strategic Communications said in an April 22 release.

Speaking during a visit to San Diego for the U.S. Pacific Fleet-led Unmanned Integrated Battle Problem 21 (IBP21), Selby said the exercise, which puts into operation different unmanned vehicles “Above the sea, on the sea and below the sea,” demonstrates that America’s growing focus on autonomous capabilities is showing impressive results.

“We are not yet where we want to be,” said Selby, “but we are getting closer. As our potential adversaries go all-in on unmanned platforms, we must and will maintain a dominant force that can meet and defeat any challenge.”

During the exercise, a large number of multi-domain unmanned platforms – including unmanned aerial, surface and underwater vehicles (UAVs, USVs and UUVs, respectively) – are being put into real-world, “blue-water” environments, working in sync with manned platforms in actual combat drills designed to support Pacific Fleet objectives in the Indo-Pacific region.

Many of the platforms in IBP21 are supported by the Naval Research Enterprise (NRE), which Selby commands. Comprising the ONR; the Naval Research Laboratory; and the Office of Naval Research Global (ONR Global), the NRE is tasked with providing the capabilities and long-term vision ensuring U.S. naval dominance today and into the future.

While many platforms in IBP21 are classified, officials are highlighting the Medium Displacement Unmanned Surface Vehicles (MDUSV) Sea Hunter and its new sister craft, Sea Hawk, as well as a long-endurance UAVs, all of which can be used for

surveillance, anti-submarine warfare and other missions.

Sea Hunter is already a proven player in the Navy's unmanned portfolio. In 2019, the vessel completed an autonomous trip from San Diego to Pearl Harbor, a distance of over 2,000 nautical miles, and returned, demonstrating credible and relevant naval capability.

Both MDUSVs can host multiple payloads and perform multiple missions to support Sailor and Marine objectives, and both are seen as game-changers.

Indeed, the performance of many new unmanned technologies are leading the Navy and Marine Corps to rethink concepts of operations, as noted in the widely publicized naval document "Unmanned Campaign Framework," recently released by the Department of the Navy.

The Unmanned Campaign Framework notes autonomy will complement, not replace, manned assets, and will provide warfighters far more options in combat.

Dr. Marcus Tepaske, who leads ONR Global's Experimentation and Analysis program and is coordinating many platforms in use during IBP21, confirmed naval unmanned capabilities are accelerating. He said these kinds of large-scale exercises are essential to ensure what works in theory will work in the fleet.

"The best test you can put a technology through is one where the warfighters get to work with it," Tepaske said. "Real-world applications are messier, dirtier, wetter and absolutely more beneficial than anything we can test in a lab. "Getting the warfighters' feedback on using these unmanned systems will be one real measure of success for IBP21."

Coordinating multi-domain manned and unmanned teaming efforts with so many different systems is in itself a daunting challenge. That job is being led by Pacific Fleet crews aboard

USS Michael Monsoor (DDG-1001), one of three Zumwalt-class guided missile destroyers with unique advanced capabilities for command and control.

Ultimately, experts say, autonomous systems are here to stay.

Dr. Jason Stack, ONR's technical director and autonomy lead, is encouraged by the forward thinking and real-world forward movement represented by IBP21. Intelligent autonomous systems, he said, will be an essential part of the Navy and Marine Corps in the near term.

"When you read the Unmanned Campaign Framework, the serious challenge we face from well-funded, highly-motivated, competitive naval forces around the world – all accelerating their autonomous capabilities – is clear," he said.

Stack noted that the U.S. and allied partners have a more robust commitment to the ethical use of unmanned systems and artificial intelligence when compared to some other nations.

"Our goal is to operationally integrate and continuously improve the types of intelligent and autonomous technologies that Pacific Fleet is testing right now," he said. "We will do this ethically and responsibly by always ensuring our Sailors and Marines can exercise the appropriate levels of human judgement over our machines. This will be our enduring competitive advantage."

The IBP21 exercise is the initial step in the Navy's commitment to operational experimentation with autonomous systems in the fleet. Following its completion, the Navy and Marine Corps will assess what worked, what didn't, and how to accelerate unmanned capabilities for the fleet and force.

NSWCDD Engineers Expand to Impact Navy Vertical Launch System Capabilities



The guided-missile destroyer USS Chafee (DDG 90) launches a Block V Tomahawk, the weapon's newest variant, during a three day missile exercise. This event marked the first time a Block V Tomahawk missile was operationally tested, marking the Navy's transition to a more advanced capability for the fleet. Block V includes an upgrade that will enhance navigation performance and provide robust and reliable communications.
U.S. NAVY / Ensign Sean Ianno

DAHLGREN, Va. – Scientists and engineers at Naval Surface Warfare Center Dahlgren Division (NSWCDD) are developing and delivering upgrades to the Navy's Vertical Launch Systems (VLS), improving the fleet's anti-air, ship self-defense, ballistic-missile defense and land-attack capabilities despite the COVID-19 pandemic, the NSWCDD said in an April 23 release.

What's more, NSWCDD hired new software and test engineers to

support the continuous increase in VLS upgrades since the command's maximum telework policy took effect in March 2020.

"As the Vertical Launch System grows into other platforms, it has created more work opportunities in our branch," said Felix Lopez, NSWCCD Maritime Weapons & Launcher Systems Integration branch head. "As a result, we knew we had to grow the team."

New work opportunities within the branch include supporting capability upgrades as well as the continued authorization and certification of the Mk41 and Mk57 VLS for shipboard test events and tactical operations.

Lisa Haas, an NSWCCD engineer and the acting certification official for MK 41 and MK 57 VLS, said she has never seen the branch and its VLS programs busier in her 31 years at NSWCCD.

"Over the last three years, we have had more changes going into our programs, more capability upgrades than we have ever had, and it's impacting more pieces of our system than ever," said Haas.

The Mk41 is a highly adaptable canister launching system capable of dispatching missiles for every threat in naval warfare. The system's adaptability enables myriad upgrades, earning its place as one of the fleet's most significant defense capabilities.

These upgrades keep NSWCCD – the sole Certification Agent and Technical Direction Agent – busy.

Some recent projects included upgrades to Mk41 to support the launch of Standard Missile, Evolved Sea Sparrow Missile and Tomahawk Missile variants. The recent upgrades in support of the Tomahawk Weapon System were so comprehensive that every ship in the U.S. Navy equipped with the Mk41 VLS is a candidate to receive the Tomahawk capability upgrades.

To keep up with these sweeping changes that affect such a large part of the fleet, Lopez said the team was due for a hiring effort when he came aboard as branch head in 2019.

“We had an issue with increasing tasking while our staffing remained about the same. This triggered hiring left and right,” said Lopez, who brought on several software and test engineers in the last year. “It’s been a challenge, but we’re doing quite well. Every time you get new personnel, you have to train them. The subject matter experts have to continue doing their job, but they also have to allocate time to train new personnel and they’ve been very effective at that.”

Haas, one such VLS expert on the team, said the pandemic-driven telework presented challenging but navigable obstacles in training the new recruits.

“It’s been more challenging to train new folks because they can’t be embedded in the middle of our large technical group with all the knowledge right there for them,” said Haas. “But we can get them approved to be on base a little more often so that we can directly interface with them. It’s very important to get new folks [on base] so that they can begin to feel part of the team and get that sense of loyalty that you get when you work with a team and a sense of pride in what you’re doing.”

This sense of pride that comes along with working in VLS is apparent in talking to Haas and Lopez. Both reference the spirited atmosphere surrounding the team and are quick to praise both the new recruits and the seasoned professionals that have been working with VLS at Dahlgren for years.

“A lot of folks in our group have been around a long time – they are very knowledgeable, capable and proactive,” said Haas. “They know what the job is and they get it done.”

When getting the job done means supporting a substantial percentage of our warfighters’ naval defense capability, it

takes a dedicated and multidisciplinary team of experts. From software engineers and computer scientists to mechanical engineers and safety professionals, the team at NSWCDD continues to support the fleet's capabilities while collaborating effectively to meet the needs of the U.S. Navy.

"VLS works together as a team very well," said Haas after rifling off more than a handful of names of teammates and partners that led to the branch's success in the last three years. "It's absolutely amazing the engineering that goes into the system, how it all works together and works together rather well. It's impressive."

Navy to Christen Guided-Missile Destroyer Lenah Sutcliffe Higbee



The Navy will christen its newest Arleigh Burke-class guided-missile destroyer, the future USS Lena Sutcliffe Higbee (DDG 123), on April 24. It is a FLIGHT IIA destroyer, similar to the USS John Finn, the first FLIGHT IIA Arleigh Burke class (DDG 51) ship, shown here. *HUNTINGTON INGALLS INDUSTRIES*

ARLINGTON, Va. – The U.S. Navy will christen its newest Arleigh Burke-class guided missile destroyer, the future USS Lenah Sutcliffe Higbee (DDG 123), during a 6:30 p.m. CDT ceremony Saturday, April 24, in Pascagoula, Mississippi, the service said in an April 23 release.

The ship's namesake, Lenah Sutcliffe Higbee, served as the second superintendent of the Navy Nurse Corps in 1911, and was also the first living woman recipient of the Navy Cross. When she entered naval service in 1908, she was one of the first 20 women, known as the "Sacred Twenty," to join the newly established Navy Nurse Corps and contributed her nursing skills to the Navy during the First World War. This is the second ship named after Higbee. The first, USS Higbee (DD 806), was the first combat warship named after a female member of the U.S. Navy.

Ray Mabus, 75th secretary of the Navy, will deliver the christening ceremony's principal address. Jay Stefany, acting assistant secretary of the Navy (Research, Development and Acquisition) and Rear Adm. Cynthia Kuehner, commander, Naval Medical Forces Support Command, will also provide remarks. In a time-honored Navy tradition, the ship's sponsors, Louisa Dixon, Virginia Munford and R. Pickett Wilson, will christen the ship by breaking a bottle of sparkling wine across the bow.

"The future USS Lenah Sutcliffe Higbee will serve for decades as a reminder of Ms. Higbee's service to our nation and her unwavering support of a strong and healthy Navy and Marine Corps team," said Acting Secretary of the Navy Thomas Harker. "This ship honors not only her service but that of all of our Navy nurses who support the strength and wellbeing of our service members and their families."

The ship will be the 73rd Arleigh Burke-class destroyer and one of 20 currently under contract for the DDG 51 program. The ship is configured as a Flight IIA destroyer, which enables power projection and delivers quick reaction time, high firepower, and increased electronic countermeasures capability for anti-air warfare. The future USS Lenah Sutcliffe Higbee will be 509.5 feet long and 59 feet wide, with a displacement of 9,496 tons. It will be homeported in San Diego.

STATCOM Chief Defends Low-Yield Warhead on Submarine-

Launched Ballistic Missiles



The Ohio-class ballistic-missile submarine USS Tennessee (SSBN 734) (Blue) arrives at the Trident Refit Facility (TRF) dry dock berthing at Naval Submarine Base Kings Bay, Ga., for a planned maintenance period, August 13. Tennessee is one of five ballistic-missile submarines stationed at the base and is capable of carrying up to 20 submarine-launched ballistic missiles with multiple warheads. *U.S. NAVY / Mass Communication Specialist 1st Class Ashley Berumen*
ARLINGTON, Va. – The commander of the nation's strategic deterrent forces again defended the low-yield nuclear warhead that the Navy has deployed at sea on Trident submarine-launched ballistic missiles on board ballistic-missile submarines (SSBNs). This time he cited analysis to support the deployment.

Adm. Charles A. Richard, commander, U.S. Strategic Command (STRATCOM), testified April 22 before the Strategic Forces subcommittee of the House Armed Services Committee (HASC) on the status of the nation's strategic forces.

“Within the last year, STRATCOM started formally measuring risk of strategic deterrence failure,” Richard said. “This is a formal risk assessment designed to make sure that we are analytically rigorous in all the things that we do, acknowledging that this is fundamentally trying to measure a subjective process, the decision making of another country. Our assessment is that the deployment of a low-yield [warhead] improved the risk of strategic deterrence, i.e., it lowered it because of the deterrent effect it achieved.”

The submarine-launched low-yield warhead became a requirement noted in the 2018 Nuclear Posture Review. The result was the W76-2 warhead, which was deployed in 2019 on the tips of some Trident submarine-launched ballistic missiles carried by Ohio-class SSBNs.

With the change in presidential administrations and the leadership of the Congress, critics, including HASC Chairman Adam Smith, D-Washington, have been bolder in expressing long-held opposition to the W76-2 low yield warhead as destabilizing to the nuclear balance.

In hearings this week before subcommittees of the Senate and House armed forces committees and in a Pentagon news conference, Richard noted that this era was the first in which the United States was faced with deterring two peer competitors – Russia and China. He termed China as the greatest strategic threat to the United States, but that Russia was the greatest nuclear threat to the United States.

He said the United States requires the total capacity of the nuclear triad – intercontinental ballistic missiles, bombers and submarine-launched ballistic missiles – to maintain strategic deterrence.

Rescue Effort Underway for KRI Nanggala: Indonesian Submarine, Crew of 53, Missing Off Bali



KRI Nanggala in the Java Sea in 2015. *WIKIPEDIA*

The Indonesian Navy has confirmed that one of its submarines, KRI Nanggala (402), and its crew of 53, is missing.

Reports quoting Indonesian defense officials say KRI Nanggala was participating in scheduled naval exercises about 60 miles north of the island of Bali when it submerged in waters about 2,300 feet deep. Nanggala had requested and received clearance to dive to conduct a live-torpedo firing drill. When communications were lost, the navy immediately commenced a search with ships and aircraft.

International media quoted Adm. Yudo Margono, the chief of

staff of the Tentara Nasional Indonesia-Angkatan Laut (TNI-AL), saying that Nanggala had fired two torpedoes during the exercise. He said the crew had enough oxygen to support the crew for 72 hours.

Tentara Nasional Indonesia-Angkatan Laut (TNI-AL), which translates to "Indonesian National Military-Naval Force," commissioned ships have the prefix KRI, which means Kapal Republik Indonesia or "Republic of Indonesia Ship."

"It is true that the KRI Nanggala-402 lost contact since early this morning around 3:00 a.m. [Wednesday local time]," said 1st Adm. Julius Widjojono.

A TNI statement said: "It is possible that during static diving, a blackout occurred so control was lost and emergency procedures cannot be carried out and the ship falls to a depth of 600-700 meters (about 2,000 to 2,300 feet)."

"We know the area but it's quite deep," Widjojono told reporters.

However, Widjojono told the independent Indonesian TV network, KompasTV, that the diesel-electric submarine was built to sustain pressure at a maximum depth of around 250 to 500 meters (820 to 1,640 feet). "Anything more than that can be pretty fatal," he said.

Searchers noted an oil slick near where Nanggala submerged, which may have come from the missing submarine.

Indonesia has requested support from several nations, including Singapore, Australia and Malaysia. The United States, Germany, France, Turkey, India and have also offered to help search for the missing submarine.

"It's very distressing for families and particularly for the Indonesian navy," said Australian Foreign Minister Marise Payne. "We have indicated that we will help in any way we can. We operate very different submarines from this one, but the

Australian Defence Force and our Australian Defence organisation will work with defence operations in Indonesia to determine what we may be able to do. We will go to the support of our neighbour in any way we can.”

Singapore has dispatched M/V Swift Rescue, a commercial ship under charter to the Republic of Singapore Navy carrying sophisticated submarine rescue equipment, including a Deep-Submergence Rescue Vessel (DSRV), hyperbaric chamber and a medical team.

The TNI operates five submarines. Nanggala is one of two 1,300-ton,195-foot Cakra-class boats were built in Germany by Howaldtswerke, commissioned in the Indonesian Navy in 1981. The two Type 209 submarines have undergone periodic refits.

Indonesia has three newer Type 209 submarines from South Korea, with the first being commissioned in 2017. The newest, KTI Alugoro, built at DSME in South Korea and the government-owned PT PAL in Indonesia, was commissioned last month on March 21. Three more boats are on order, to be completed at PT PAL.

The International Submarine Escape and Rescue Liaison Office (ISMERLO) sent an alert stating that it had been notified of the missing submarine and was standing by to support any response.

ISMERLO was established in 2003 by NATO and the Submarine Escape and Rescue Working Group to coordinate international submarine search and rescue operations.

ISMERLO’s international team of submarine escape and rescue are based at COMSUBNATO, part of the NATO Allied Maritime Command at Northwood, U.K., and on call 24/7/365.

“We have a wide variety of open communications capabilities to respond to a crisis,” said Italian Navy Cmdr. Gennaro Vitagliano, head of the ISMRERLO Branch at COMSUBNATO. “We are

free to talk to everybody, because we are talking about saving lives at sea.”

Vitagliano said there are 41 member nations who operate submarines, including Indonesia. The only two nations that have submarines and are not members of ISMERLO are Iran and North Korea. “The rest of the world is fully involved with ISMERLO. Each nation has their points of contact and they are always accessible. We are a worldwide network to save lives at sea. We train and operate to a common standard, as set forth in A/MTP-57, the Submarine Search and Rescue Manual, or Global SUBSAR Manual. Our organization and our system must be functional, tested and ready at all times. We conduct periodic exercises, and when we do, we can identify shortfalls in our rescue plans and procedures. Our goal is to minimize time to first rescue.”

NSWC Dahlgren Tests G/ATOR System Capabilities for U.S. Marine Corps



U.S. Marines with Marine Aerial Refueler Transport Squadron 152 (VMGR-152) and Marine Air Control Group 18 (MACG-18) conduct load operations at Marine Corps Air Station Futenma, Okinawa, Japan, Nov. 9, 2020. This is the first time VMGR-152 and MACG-18 have worked together to load an AN/TPS-80 Ground/Air Task Oriented Radar system onto a KC-130J Super Hercules aircraft. *U.S. MARINE CORPS / Lance Cpl. Dalton J. Payne*

DAHLGREN, Va. – Navy engineer Danny Mudd looked forward to the arrival of a new U.S. Marine Corps radar system after working on the program for years. When the AN/TPS-80 Ground/Air Task-Oriented Radar (G/ATOR) system – a mobile unit designed to be stationed anywhere while providing air surveillance and ground weapons locating capabilities – arrived at Naval Surface Warfare Center Dahlgren Division (NSWCDD), Mudd and his team were ready to provide five weeks of test and evaluation, the NSWCDD said in release.

“It’s exciting to be able to test an actual system when you’ve been working on it for years,” said Mudd, G/ATOR program team lead and radar operations manager for the Sensor Software

Engineering Branch at NSWCDD. "Having the radar in our backyard is a game changer and makes you really appreciate the work that we've done here and continue to do."

Mudd and his team manage the lab productivity that maintains and updates the test assets with the branch's software support activity lead, Bradley Payne, who provides software development for the G/ATOR system.

"We provide government support to the program office, located in Quantico, and develop test procedures for the radar system," said Bill Shea, G/ATOR technical program manager in the NSWCDD Sensor Software Engineering Branch. "Our G/ATOR team has supported this program for well over 10 years."

Shea and his team collaborate with other naval warfare centers, the primary contractor Northrop Grumman and several branches across Dahlgren.

Before participating in integrated field tests, a new version of G/ATOR was brought to NSWCDD to perform interoperability testing with other systems. Shea and his team prepared for the G/ATOR's testing schedule by verifying the command's infrastructure functionality, including power accessibility, radar data recording abilities and data analysis capabilities.

"Having a tactical radar at Dahlgren for our engineering team to utilize, allows the team to develop expert knowledge of the radar's functionality and capability," said Shea. "In collaboration across the warfare center and the contractor, the G/ATOR team achieved that ability to field test, collect data and verify theories to improve the radar's performance and support the warfighter."

Within the first week of the G/ATOR system's arrival, command, senior leadership and essential team leads conducted walkthroughs of safety protocols and complete range safety validations before live testing.

For many team members supporting the G/ATOR project, the opportunity to work directly with the system and have accessibility to calculate theories proved beneficial for the warfare center.

“Many people working on the radar program have only seen the G/ATOR in pictures since one wasn’t available until this test event,” said Shea. “The opportunity to engage with the unit at Dahlgren helps software developers understand some of the interfaces they’re building. They can see firsthand how the software is being used.”

Through collaborative efforts within the department and other divisions across NSWCDD, the G/ATOR team performed central testing evaluations that verified the radar systems detection functionalities and software capabilities. During the test schedule, the G/ATOR team conducted evaluations around the clock during the workweek.

Dahlgren’s G/ATOR team is already planning to expand the sustainment of software capabilities for the G/ATOR system through integrated test evaluations.

Sea Guardian UAV Operates With Naval Assets



An unmanned MQ-9B Sea Guardian operated in conjunction with a guided-missile cruiser, executing long-range, over-the-horizon targeting, during the Unmanned Systems Integrated Battle Problem 21. *GA-ASI*

SAN DIEGO – The U.S. Navy demonstrated the successful integration of an unmanned maritime surveillance aircraft system with manned capabilities during the Unmanned Systems Integrated Battle Problem 21 (UxS IBP 21) off the coast of San Diego, April 21, U.S. 3rd Fleet Public Affairs said in a release.

The unmanned MQ-9B Sea Guardian operated in conjunction with a guided-missile cruiser, executing long-range, over-the-horizon targeting. Using sonobuoys and other assets, the Sea Guardian identified contacts and reported locations remotely to the commander on board the cruiser.

“The integration between unmanned and manned capabilities shown today provides an operations approach to strengthening our manned unmanned teaming,” said Rear Adm. James A. Aiken, UxS IBP 21 tactical commander. “Putting our newest technology into our Sailors’ hands directly enhances our fleet.”

Operational synchronization between unmanned capabilities and traditional manned naval assets ensures the Navy maintains its technological and warfighting advantage. Sea Guardian enhances the Navy's antisubmarine and anti-surface warfare capabilities, among many others.

UxS IBP 21 is a U.S. Pacific Fleet exercise, executed by U.S. 3rd Fleet, designed to integrate manned and unmanned capabilities into operational scenarios to generate warfighting advantages. The week-long event involves surface, subsurface and aerial unmanned assets, operating with littoral combat ships, guided-missile destroyers, guided-missile cruisers, submarines and helicopter squadrons.