NAVAL SURFACE WARFARE CENTER
INDIAN HEAD DIVISION

NSWC INDIAN HEAD DIVISION

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NAVSEA

WARFARE CENTERS

Indian Head

2022 YEAR IN REVIEW

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Command Mission: *To research, develop, test, evaluate, manufacture and provide in-service support of energetics and energetic systems. Provide Soldiers, Marines, Sailors and Airmen with information and technology to detect, locate, access, identify, render safe, recover, exploit and dispose of explosive threats.*

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Glossary:

CAD/PAD	Cartridge Actuated Device/ Propellant Actuated Device
CBRD	Chemical, Biological and Radiological Defense Division
DoD	Department of Defense
EOD	Explosive Ordnance Disposal
NAVSEA	Naval Sea Systems Command
NSF	Naval Support Facility
NSWC IHD	Naval Surface Warfare Center Indian Head Division
RDT&E	Research, Development, Test and Evaluation

COMMANDER'S ASSESSMENT

Commanding Officer Capt. Eric Correll

Throughout 2022, NSWC IHD increased the pace to a quickened stride in support of the warfighter. The command saw an increase in overall production and improvements across the command as the team honed its focus, and the war in Ukraine reinforced the importance of NSWC IHD's work not only in munitions but also in a variety of energetics capabilities.

As our team leaned in hard across the command, we saw many infrastructure projects surge forward in various stages. The command saw groundbreakings on significant buildings, including the Aug. 19 Advanced Energetics Research Laboratory Phase II military construction (MILCON) and the Oct. 28, Chemical, Biological & Radiological Defense (CBRD) Division's maritime chemical detection laboratory and modeling and simulation center. In addition to many other restoration and modernization projects, 2022 saw commencement of the long-awaited HVAC upgrades at the McAlester, Oklahoma Detachment, completion of several millions of dollars in paving and concrete work at Naval Support Facility (NSF) Indian Head, planning for replacement of all the potable water and some river water utilities at NSF Indian Head, and a ribbon-cutting ceremony as the command completed its $100 million state-of-the-art liquid nitrate ester manufacturing Agile Chemical Facility (ACF). These projects represent a tremendous effort many years in the making, and they are great examples of where NSWC IHD continues to prioritize its infrastructure need in order to meet the current and future needs of the warfighter. These new facilities will increase our critical capabilities to produce the energetic products our fighting forces need in the ongoing strategic competition with peer competitors on the global stage.

Across the command, we steadily returned to the business at hand with many critical engagements and big wins throughout our departments. This issue of the 2022 NSWC IHD Year in Review will highlight many of these accomplishments, but I want to acknowledge some critical efforts.

In conjunction with the National Armaments Consortium (NAC), NSWC IHD hosted two successful Naval Energetic Systems and Technologies (NEST) Other Transaction Agreement (OTA) collaboration events in January and June. NSWC IHD's recent authority to establish the NEST OTA, allows the command to enter a contract outside Federal Acquisition Regulations with nontraditional defense contractors.

Under a traditional contract assignment, once a request for a proposal is released, the customer is not permitted to speak with the submitting company. However, OTAs allow the customer — and in this case, the command — to work with companies to discuss improving the product, facilitating partnerships between private industry and the command. In 2022, the NSWC IHD team, both on the technical and business sides, were very successful in utilizing the OTA authorities, with 18 awards totaling $159 million in prototype projects.

Efforts from the command's Comptroller and Contracts Departments were a significant factor in the year's success, as an enormous amount of effort went into providing the needed flexibility and an in-depth review of the command's finances to stabilize the command's rates. Additionally, an in-depth study with a nationally recognized consulting firm completed in September assisted the command and Naval Sea Systems Command (NAVSEA) headquarters in determining the best course forward for supplying and supporting the energetic needs of today's fighting forces.

The command's Corporate Operations Department stepped up to the plate as well. The Human Resources Division's support of the end of the fiscal year's onboarding surge was incredibly successful. These new workforce members provide fresh insight and input to continue the advance of this energetics renaissance NSWC IHD is leading.

In addition to the successes mentioned above, the Infrastructure Division executed many actions daily, both within our own shop capability and relying on support from outside the fence line, to repair and maintain the Navy's only arsenal. The Activity Chief Information Officer (ACIO)/IT Division added new functionalities to several buildings to include new network support, fiber and a rollout of new equipment across the command. Finally, the Security Division had several members who achieved new certifications and objectives to ensure the command's safety and security. Security also began establishing a new CAC office, which will reduce wait times to get the command's workforce on the job as quickly as possible.

The command's technical departments were responsible for several wins, including the certification of a new energetic material — PBXIH-143. With the collaboration of nearly all the command's technical departments, the Office of Naval Research and other entities, we reached a major milestone in the future of energetics with this new certification. This year saw the successful completion of an initial mix of the material and two subsequent mixes over the following months. The cured and assembled test articles were shipped to Aberdeen Proving Ground in Maryland and Fort A.P. Hill in Virginia. The resulting underwater and airburst detonations exceeded all performance expectations and are a prime example of the Navy's only arsenal drawing upon its collective resources and operating as intended: rapidly molding molecules into explosives that fulfill the warfighter's mission and doing so without sacrificing quality or employee safety.

I would be off target if I failed to mention the around-the-clock efforts across several months from nearly all the technical departments as they faced tremendous challenges ensuring the safe operations of many ejection seats. In April, an ejection seat manufacturer officially notified the command's cartridge- and propellant-actuated device (CAD/PAD) Joint Program Office (JPO) and the F-35 JPO of an issue that would prevent CADs installed on the F-35 ejection seat from functioning correctly, risking many lives across all the service branches. As a result, NSWC IHD CAD/PAD personnel developed and validated a non-destructive procedure to verify if suspect devices contained the required energetic ingredients quickly. In addition, Expeditionary Exploitation Unit ONE (EXU-1) developed a portable radiographic inspection procedure to support on-site testing of aircraft for this defect. The strategy was implemented around the world to support F-35 aviation readiness.

In July, the manufacturer again notified the CAD/PAD JPO of this issue's applicability to other ejection seats installed in many joint U.S. military aircraft. The production processes were updated to address concerns. Still, out of an abundance of caution, the Naval Air Systems Command (NAVAIR) immediately paused impacted aircraft operations until suspect components could be inspected. This decision temporarily grounded U.S. military and foreign military aircraft. NSWC IHD's Non-Destructive Evaluation Branch engineers and technicians immediately responded with around-the-clock support to inspect suspect items identified within existing stockpiles.

As a result, more than 4,400 items were screened and validated with no defects found before their return to usable inventory, much of which was quickly packaged at NSWC IHD's Consolidated Stock Point and shipped away from the region by truck, helicopter or aircraft. Facility temperatures exceeding 100 degrees combined with shifts in excess of 12 hours per day for six days each week lasting nearly a month embodied the resolve of the CAD/PAD team and ensured a steady supply of replacement assets. Despite the scope and size of the challenge, NSWC IHD employees did what they do best in support of the warfighter. This was a major operation involving the command's technical departments in

COMMANDER'S ASSESSMENT

Maryland and the contingent at Hill Air Force Base in Ogden, Utah, who could respond to the Air Force's needs there. In addition, this operation was supported closely by the command's Contracts, Facilities and IT personnel. I am incredibly proud of how this command came together, stepped into the breach, and found solutions to get our aviators back in the skies safely.

EXU-1 saw a busy 2022, with a May 26 change of command, where Cmdr. Eric Hui relieved Cmdr. Edgar Britt as commanding officer. The unit conducted highly visible deployments to the fifth, sixth and seventh fleets as well as joint and interagency support to the U.S. European Command area of responsibility.

The command's Yorktown, Virginia locations and McAlester, Oklahoma detachments had numerous ordnance assessments, which they passed with flying colors. These are but brief examples of the numerous successes our command members have at various locations around the country and the world. Each of these small cadres of the workforce is an outstanding example of merit — independently working towards a common goal in support of energetics excellence and of this nation's fleet and armed forces.

Even as we worked on our technical competencies and towards strengthening the command's facilities and infrastructure, we also looked to our greatest assets as a command — the resiliency of our people — and in 2022, we made significant investments into the well-being of our workforce as well.

The command's Chief Learning Officer and Culture Director partnered to deliver the Operational Effectiveness Team (OET). The OET leverages internal resources to examine, build and sustain team culture at three levels: individual, team and leadership. With a focus across four lines of effort — issues of difference, communication, personal accountability and inclusion — the command is working to create an environment of trust, belonging and individual and mutual accountability, reduce attrition and facilitate a change from within.

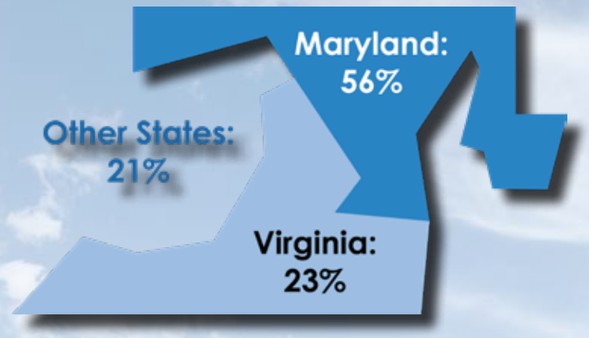
The command's new facilities and structures are empty shells without a resilient, accountable and inclusive workforce built on a foundation of trust. Our workforce drives the innovation that is a keystone of what has made this 130-plus-year-old organization such a valuable resource to this nation's military services. To that end, NSWC IHD partnered with Dr. S.L. Robbins, a leader in inclusion, diversity and belonging. During a two-part event, Robbins provided an innovative, neuroscience-based look at the benefits of creating inclusive workplaces.

In addition to the challenge of hiring to attrition, the command faced the dilemma of an increased composite stabilized rate that is a deterrent to some customers. With an aging infrastructure and limited funding to continue making the necessary improvements, the command passes along some of that cost to the customer. The command's Comptroller Department worked hard with outside parties to analyze and communicate possible solutions to our large infrastructure needs beyond our current business and investment model. These Comptroller efforts, along with many of the affected departments, are now used as the basis for our discussions with key senior leaders in the Navy. These discussions will help us determine a way forward where we can better provide a business and investment model beyond what we presently use. This is an ongoing issue that will not be solved overnight, but we are actively engaged with the right decision makers to tackle this issue, which is a timely discussion as the U.S. experiences broader Munitions Industrial Base issues laid bare from the present Ukraine combat operations.

Overall, the command had an excellent year, with all departments working together towards the common goals outlined in our strategic guidance. While 2022 was not a year without challenges or stumbles, it's one of which our team can be proud. As the 2022 Year in Review demonstrates, our workforce has done a phenomenal job in supporting the warfighter. As I look forward to the next year, I am watching for ways that the command can improve on our increased pace and look forward to seeing how we will go from a jog to a steady runner's gait and increase our speed.

ECONOMIC IMPACT

Where We Live



NSWC IHD Total Maryland Payroll

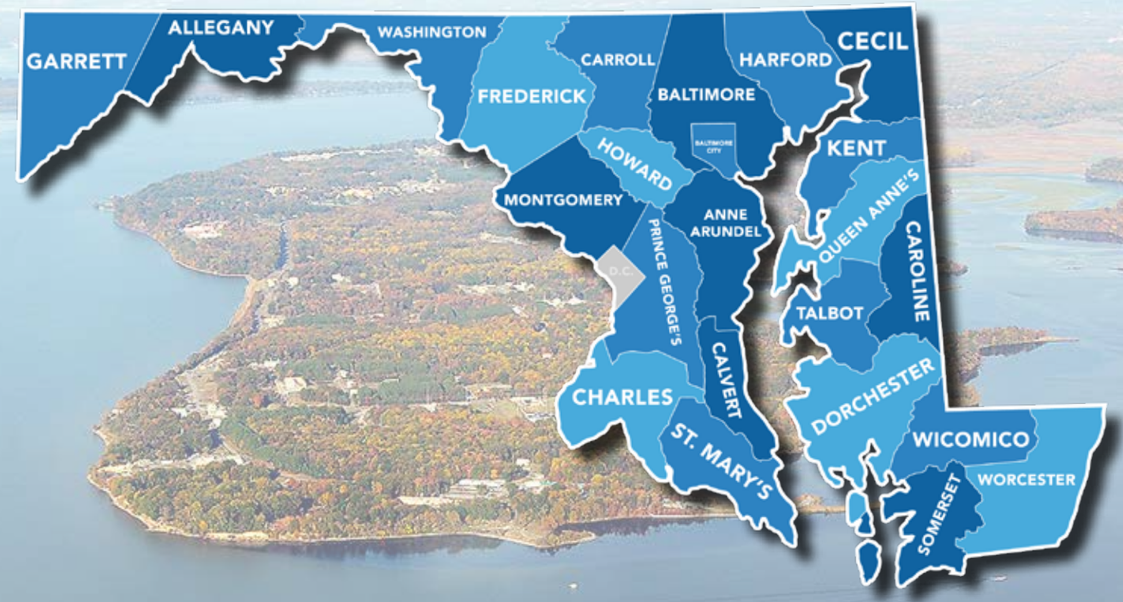
$346 million

FY22 Maryland Contract Dollars

$44.6 million

County-by-County Employee Breakdown (Maryland)

Charles	68%
Saint Mary's	12%
Prince George's	10%
Calvert	3%
Anne Arundel	3%
Other	4%



STRATEGIC LOCATIONS

Total number of employees:
2,372 (civ), 69 (mil)
Other locations: 110

Crane, Indiana: 4 civilians
- Design and construct portable armories
- Provide automation for front gates

Indian Head, Maryland (two sites):
1,873 civilians, 68 military
- NAVSEA Center of Excellence (CoE) for Energetics
- DoD EOD program lead
- Expeditionary Exploitation Unit 1 (EXU-1)

Ogden, Utah: 19 civilians
- Co-located at Hill Air Force Base
- CAD/PAD Air Force Integrated Product Team

Picatinny, New Jersey:
264 civilians, 1 military
- Located at Picatinny Arsenal
- Joint CoE for Guns and Ammo
- Navy Package, Handling, Storage and Transportation, Guns and Ammo

Camp Pendleton, California:
7 civilians
- Demonstration and Assessment Team
- Assigned to D Department

Rock Island, Illinois: 6 civilians
- Quad Cities Caliber Cartridge Case Facility
- Aligned with G Department

Norfolk, Virginia: 27 civilians
- Demonstration and Assessment Team
- Guns Division
- CBR-D

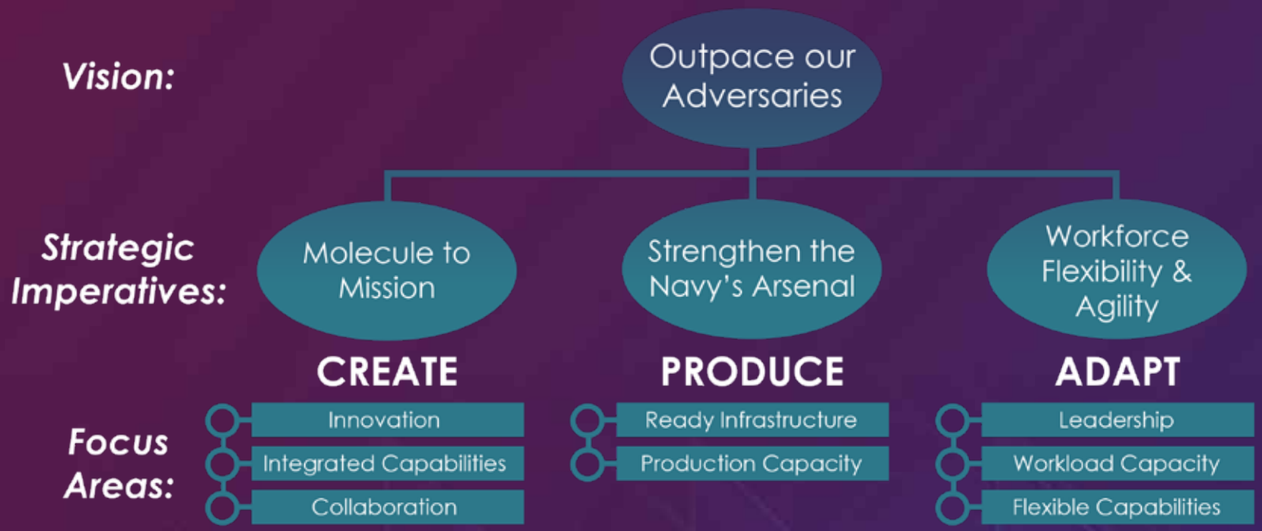
Louisville, Kentucky: 12 civilians
- Naval Guns

McAlester, Oklahoma:
50 civilians
- McAlester Army Ammunition Plant

NAVSEA
WARFARE CENTERS
Indian Head

** Contractor numbers not included*

STRATEGIC FRAMEWORK UPDATE



In January, Andrea Bloomer became the command's new Director of Strategy. She entered the position with a clear mission: Refresh and evolve the strategic plan with NSWC IHD Commanding Officer Capt. Eric Correll's and Technical Director Ashley Johnson's strategic imperatives at the forefront.

From 2016 to 2021, the command achieved its vision to grow 400 work years stronger and accomplished a multitude of successes under the prior strategic plan. Great strides were made in restoring and reshaping NSWC IHD facilities, increasing energetics research and development, expanding opportunities via Public-Private Partnership (P3) agreements, and improving the quality and reliability of command products and services through technical rigor. The time had come to outline a new vision and strategy.

In February, Correll and Johnson introduced a new vision: outpace our adversaries. The vision is essential in the current era of strategic competition, as NSWC IHD is called upon to continually deliver combat capability to the fleet and joint forces. The strategic imperatives beckon NSWC IHD to increase its pace to produce, create and adapt faster than would-be adversaries, using its full-spectrum capability set to deliver what our warfighters need, at quantities they need, when they need it.

Command leadership kicked off an internal communication campaign for the new strategy, including leadership livestreams, podcasts and internal newsletter articles beginning in March. The new strategy relies on the entire workforce being fully informed and engaged. Events such as Supervisor All Hands meetings were used to deep-dive into the strategic framework and to give insight into what our adversaries are doing, providing the "why" behind the new vision.

"We're taking a different approach this time around. Instead of the command saying, 'these are the initiatives,' we're looking to the workforce and asking, 'what are you doing to outpace our adversaries?' We're in a rapidly evolving climate geopolitically, and we need a strategy that allows us to evolve and adapt real-time. This new approach gives us flexibility to do just that and reinforces that everyone in the command has a role to play. We will only be successful when we all put our focus on outpacing," said Bloomer.

Correll and Johnson also initiated an external influence campaign, conducting several key leader engagements throughout the year. Beginning with Commander, NAVSEA Vice Adm. William Galinis in March and including the Principal Military Deputy to the Assistant Secretary of the Navy for Research, Development, and Acquisition Vice Adm. Francis Morley in October, these high-profile engagements brought increased awareness and understanding across Navy senior leadership on the critical role of munitions and NSWC IHD, the Navy's only arsenal. The 2022 engagements ended with Deputy Assistant Secretary of the Navy for Budget (FMB)/Director of the Fiscal Management Division, Office of the Chief of Naval Operations, Read Adm. John Gumbleton, and reinforced the Navy's commitment to revitalizing and sustaining a world-class arsenal.

"To outpace our adversaries, it is imperative that we integrate and collaborate across our molecule-to-mission capabilities, strengthen the Navy's arsenal, and improve the flexibility and agility of our team. The strategic framework provides an outline to achieve this vision, with specific focus areas to help us along the way."

– Excerpt from NSWC IHD Strategic Framework

The refreshed strategic framework was published in December, following release of the CO/TD annual command guidance for FY2023. The framework expands on the three strategic imperatives; Molecule to Mission, Strengthen the Navy's Arsenal, and Workforce Flexibility & Agility. The document serves as a resource to guide decision-making and enable mission command aligned to the vision. ❖

EXU-1 kicked off its inaugural Unmanned Aircraft System (UAS) training course at EXU-1's new training site on NSF IH. The timeline to obtain the optimum training location and required approvals with the FAA to conduct flights within the NSA SP airspace was approximately two years in duration. UAS training will enhance the analysis capability of EXU-1 during a post-blast investigation or site exploitation.

Emerging challenges, opportunities and requirements for prototype projects were the main highlights of the NSWC IHD and NAC NEST OTA collaborative event. The two-day session started on Jan. 18 and included 11 statements of need briefings and meetings to discuss the individual requirements of government technical points of contact and NAC. A second NEST collaboration event was held at the College of Southern Maryland (CSM) Velocity Center in Indian Head, Maryland in late June. ❖

The command was named a winner in the 2022 Federal Laboratory Consortium (FLC) National Awards Program, earning the Excellence in Technology Transfer Award. NSWC IHD is the only Navy command to receive an FLC Award this year. The FLC Awards Program annually recognizes federal laboratories and their industry partners for outstanding technology transfer achievements. The Excellence in Technology Transfer Award recognizes employees of FLC member laboratories and non-laboratory staff who accomplished outstanding work in the process of transferring federally developed technology. NSWC IHD received the award for its efforts in developing Silent Spring, a technology that desensitizes homemade explosives (HME). HMEs are extremely sensitive and unpredictable; a stray spark, a change in temperature, exposure to sunlight, or even an accidental bump can set them off. ❖

The NSWC IHD CAD/PAD JPO and its collaborative team continued to receive countless Bravo Zulus for the tireless, selfless and exceptional work to mitigate ejection seats' quality escape issue for a number of F/A-18B/C/D Hornet, F/A-18E/F Super Hornet, E/A-18G Growler, F-35B/C Lightning II, T-45 Goshawk and F-5 Tiger II training aircraft. ❖

NSWC IHD hosted the 2022 CAD/PAD Technical Exchange Workshop (TEW) at the CSM Velocity Center in Indian Head, Maryland, July 12-14. The CAD/PAD TEW is a biennial event focusing on the science and technology initiatives that will enhance the ability to meet warfighter readiness. This year's theme was "Delivering Energetics and Egress Capabilities to Meet Future Aviation Readiness and Capabilities at Capacities that Will Outpace Our Adversaries." ❖

During production of a PVU-7/A Ignition Device lot, M Department operations crew, technicians and the building supervisor collaborated during the Phoenix Campaign to complete production in 12 working days, a production time record to surpass the previous 14-day record. The campaign took initial steps to lean pre-production and achieve uninterrupted production at industry standard rates; develop tools to help the department plan and execute work as an efficient and effective manufacturing organization; and develop metrics to track our progress and demonstrate improvement.

Cmdr. Eric Hui relieved Cmdr. Edgar Britt as commanding officer of EXU-1 during a change of command ceremony onboard NSF IH, May 26. EXU-1 was first established in 2006 as a detachment under NSWC IHD. In 2017, the Secretary of the Navy gave approval to establish EXU-1 as an Echelon V command, culminating in a formal establishment as a stand-alone command in 2018. NSWC IHD Commanding Officer Capt. Eric Correll (left) presents outgoing EXU-1 Commanding Officer Cmdr. Edgar Britt (right) with a Meritorious Service Award during a change of command ceremony, May 26. Commodore Ken Kleinschnittger (back center) served as guest speaker for the event.

NSWC IHD unveiled its state-of-the-art Agile Chemical Facility (ACF) on June 13. The $100 million liquid nitrate ester manufacturing facility is a critical capability for the Navy and the Defense Industrial Base Sector. The ACF consolidates the capabilities of both the legacy Biazzi and Moser nitration facilities — built in the 1950s and 1960s, respectively — into one highly automated complex capable of production-scale manufacturing of six different liquid nitrate esters used in various DoD products. The facility's production will greatly surpass its legacy plant predecessors with a capacity of up to 2,000 pounds of Otto fuel II per hour, which equates to over 1 million pounds per year.

NSWC IHD's D Department supported the 6th Eastern National Robot Rodeo in Crawfordville, Arkansas, Aug. 8-12. The annual event aimed at introducing cutting-edge robotic technology, saw the participation of operators from military and public safety bomb squads. D Department collaborated with industry leaders such as the Air Force Civil Engineer Center, Department of Homeland Security's Cybersecurity and Infrastructure Security Agency Office for Bombing Prevention, Sandia National Laboratory and United Kingdom Defence Science and Technology Laboratory. ❖

Dr. Steve Robbins, a nationally recognized expert in human behavior, engaged NSWC IHD employees on the importance of diversity and inclusion. During a two-part session at the CSM Velocity Center in Indian Head, Maryland, Sept. 20, Robbins pointed out the importance of culture to promote inclusion, drive performance, enhance creativity and build relationships. NSWC IHD's Technical Director Ashley Johnson talked about the command's values and tenets which are the foundation to its culture — a key enabler to NSWC's mission success and as a thriving organization.

The JPO hosted the annual CAD/PAD Industry Summit on Oct. 31 in conjunction and prior to the start of the 60th Annual Safety and Flight Equipment (SAFE) Symposium at the Arthur R. Outlaw Convention Center in Mobile, Alabama. The forum provided CAD/PAD program portfolio updates as well addressed safety initiatives, and science and technology initiatives in manufacturing and energetics development with a focus on improving and sustaining aviation readiness and safety. The guest speaker for the event was Navy Cmdr. Brandon "Norman" Michaelis, (pictured) who recounted the events of March 15, 2010 where he ejected from his aircraft during a mid-air collision with another F/A-18E.

STEM AND OUTREACH

The command returned to the Charles County Public Schools' (CCPS) History, Industry, Technology and Science Expo, March 12. The event combined the CCPS history and science fairs with various Science, Technology, Engineering and Math (STEM) demonstrations, to include the Sea Perch underwater robotics competition. The command's display included a fighter pilot ejection seat to give students and their parents a visual understanding of the instrumental role command technology plays in ensuring a pilot successfully ejects during an emergency. Attendees also had the opportunity to touch and ask questions on an EOD robot display to emphasize how this technology keeps EOD operators safe while deployed. Pictured: NSWC IHD Communications Specialist Josh Phillips (left) describes the functions of an EOD robot with student Connor Tuttle (right).

NSWC IHD personnel continued its annual tradition of supporting the Charles County Fair in La Plata, Maryland, Sept. 15-18. "It is always great to make our way to the fairgrounds and interact with the community. As the county's second largest employer, it is important that we continue to affirm our commitment as good neighbors to the residents of Charles County. As many of our command personnel live in this community, I believe we have that responsibility to get out and share the message of our mission and strengthen our civic ties," said NSWC IHD Commanding Officer Capt. Eric Correll. Pictured: NSWC IHD employee Janet Virgin helps a young visitor explore an EOD robot at the Charles County Fair.

La Plata High School in Charles County, Maryland invited employees from NSWC IHD to participate in its yearly Senior Exit Portfolio Mock Interviews. Staff from the Human Resources (HR) Division were happy to oblige and took part in the event. Interviewers from HR included: Diana Murray, Lisa Robey and Lauren Trilli. Later in the year, HR Division employees Joselyn Alonso, Jenipher Beinert, Kristy Burns, Heather Del Selva, Susan Dunleavy, Diana Murray and Molly Smith volunteered to participate in the interview process at the North Point High School. Employees provided insight and shared experience and skills to assist the students in their future endeavors. Pictured: Joselyn Alonso interviews (left) with a North Point High School student.

Eighth grade science students at Matthew Henson Middle School in Charles County, Maryland, got a chance to put Newton's laws of motion into action, June 8, thanks to NSWC IHD. The command's STEM outreach group donated a box of STEM "balloon buggy" activity kits to CCPS for distribution. NSWC IHD Chief Technology Officer Dr. Kerry Clark, former Deputy Chief Technology Officer Coit Hendley and STEM coordinator Catherine Shingleton visited the school to interact with the students to build the buggies and have some fun. Pictured: Clark (center) helps eighth grade students strategize the best way to build their balloon buggies during their science class at Matthew Henson Middle School.

Members of the command's Professional Development Council (PDC) participated in the Dashiell Marina beach clean-up, April 9 at NSF Indian Head. The team collected trash ranging from plastic scraps and bottles to TVs, dirt bike helmets and 55-gallon drums from the shores of Indian Head, Maryland. The PDC effort helped NAVFAC maintain its compliance with environmental permit requirements and kept Indian Head's coastline litter free. Pictured from left to right: PDC members Kayla White, Joe Schutt, Keshia Capers, Jonathan Stevens and Aliza Asimenios.

In August, NSWC IHD's Naval Energetics Technology Apprenticeship Program (NETAP) made a splash with its underwater robotics competition at the NSF Indian Head's Aquatics Center. The competition was the culmination of the high school students' three-week summer internship with NSWC IHD. It marked the end of NETAP's first season and was a big step towards STEM engagement at NSWC IHD. In addition to the competition, students submitted an engineering notebook to track their data and lessons learned and prepared a final engineering report to summarize their accomplishments. Notebooks and reports were scored along with each challenge of the competition to demonstrate the engineering process. Pictured: NSWC IHD employee David Fuller (center) assist NETAP students with their underwater robot.

COMMAND STAFF (00/TD)

Occupational safety and health (OSH) Manager Faith Provencal and Department Safety Committee Chairs Tara Reed and Anthony Knott attended an Occupational Safety and Health Administration (OSHA) training course and were sworn in by the OSHA Voluntary Protection Program (VPP) as a Special Government Employee (SGE), Aug. 25, in Washington, D.C. SGEs represent OSHA in safety program assessments throughout the region to support the command in maintaining its OSHA VPP Worksite "Star" status.

In 2022, the NSWC IHD Customer Advocate Office (CAO) established a Government-Industry partnership to support the National Nuclear Security Administration, a Department of Energy component, and secure a four-year $60.5 million effort to develop a prototype process for the synthesis triaminotrinitrobenzene explosive. This partnership among the Product & Process Scale-up Manufacturing Technology Division and Global Military Products was executed through the NEST OTA contract vehicle. ❖

The U.S. Navy proposed a Joint Capability Technology Demonstration (JCTD) project for Rapid Large Area Clearance (RLAC), an effort led by the command's EOD Applications Customer Advocate. The RLAC JCTD is a three-year $26.2 million effort developed to provide "rapid clearance of unexploded hazards within critical infrastructures to sustain logistics after adversary attack." NSWC IHD led this effort and provided information related to the current EOD capability gaps, technical input on the potential technology space, and inputs on key tasking to demonstrate these capabilities for the EOD community. In July, the proposal was selected for funding by the Office of the Secretary of Defense, and the effort began in October. ❖

The CAO executed 10 new Cooperative Research and Development Agreements on behalf of the technical departments, representing approximately $3.5 million in direct labor and issued 18 awards, totaling $159 million in prototype projects equating to more than $3 million in labor at NSWC IHD, including command priorities such as N-Ray and Triamino-Trinitro Benzene, both of which establish new capabilities within the command. The CAO was also instrumental in helping to identify invention disclosures from across the command and filed eight new patent applications and supported the issuance of 15 new patents by the United States Patent and Trademark Office. ❖

The CAO also facilitated the opening of the Maryland Technology Campus in May in partnership with the United States Bomb Technicians Association (USBTA). This new collaborative space allows for research and development activities, training and testing and evaluations. ❖

NSWC IHD Technical Director Ashley Johnson delivered Naval Energetics Executive Committee (EXCOMM) briefs to multiple senior officials including Deputy Assistant Secretary of the Navy for RDT&E, Joan Johnson; Maryland Secretary of Commerce Michael Gill; Performing the Duties of the Assistant Secretary of the Navy Tommy Ross; and Principal Military Deputy Assistant Secretary of the Navy (Research, Development and Acquisition) Vice Adm. Francis Morley. EXCOMM was a multiyear effort, originating from conclusions in the 2017 Energetics Renaissance Strategy, to help establish a surer footing for the energetics community at large for the future. It focused on the need for improved transition resourcing for emerging energetics concepts, investments to improve supply chain and production challenges, and the establishment of a human capital strategy to ensure appropriate knowledge, skills and abilities are passed to the next generation of energetics experts. Following the Russian invasion of Ukraine, these tasks have only intensified in relevance and urgency. ❖

Johnson also taught five courses at Indian Head University on basic ordnance technology, basic Indian Head processes, critical thinking/learning from failures, 3 Circles, and strategic thinking as a fundamental element of leadership. ❖

The Office of Counsel returned to newly renovated offices in September. Counsel initiatives included a realignment of attorney services consistent with the customers' and clients' organization. New personnel who joined the team included Luke McPherson, specializing in civilian personnel and ethics, and Toya Davis, specializing in acquisition law, ethics and Freedom of Information Act cases. Davis and Cece Martin assisted the Contracts Division in successfully resolving two agency bid protests.

Commanding Officer Capt. Eric Correll presents OSH Manager Anthony Brown with his official retirement letter during a celebration in La Plata, Md. in February, after many years of dedicated military and civilian service.

COMMAND STAFF (00/TD)

The CAO provides direct support to the command's various customers to include requirements assessment, issue resolution, sponsor engagement, and financial management. Additional primary functions focus on strategic business development and sustainment such as proposal development, workload forecasting, industry and academic partnerships, and market analysis. The CAO is the primary interface for those doing business with the NSWC IHD.

In August, Ashley Johnson, NSWC IHD technical director, published "The Dangerous Depletion of U.S. Weapons Arsenal" in the U.S. Naval Institute publication Proceedings. He, along with the command staff, were heavily involved in the Project Structure Rapid Improvement Event in the spring, submitted Naval Energetics Executive Committee final recommendations in March, and contributed to the Navy Arsenal Modernization Plan in the fall. ❖

The Joint Program Office hosted the annual CAD/PAD Industry Summit in conjunction with the 60th Annual SAFE Symposium at the Arthur R. Outlaw Convention Center in Mobile, Alabama, in October. The forum provided CAD/PAD program portfolio updates and addressed safety and science and technology initiatives in manufacturing and energetics development with a focus on improving and sustaining aviation readiness and safety. ❖

The Safety Office, in conjunction with Corporate Operations, developed the Consolidated Hazardous Material Reutilization and Inventory Control Program (CHRIMP) which is the Navy's fundamental tool of life-cycle control and management of Hazardous Material (HAZMAT). In February, the Safety Office presented Rapid Improvement Event results on CHRIMP. ❖

Collaborating with Naval Supply System Command (NAVSUP) Fleet Logistic Center, the Safety Office coordinated 413 HAZMAT and chemical locker assessments with support of the HAZMAT coordinators working group, completing a 100% locker assessment for CY2022. ❖

Maryland Department of the Environment (MDE) conducted the following annual comprehensive facility inspections at the command:

JPO staff from Left: Jeff Watts, Victor Njemanze, Gregory Longworth, Patricia Shaw, Marisa Miller, Jason Caron, Brandon Helm and John Cardova.

- September: Resource Conservation and Recovering Act (RCRA), air compliance inspection, National Pollutant Discharge Elimination System and industrial waste processor, with no significant findings noted.

- November – December: Environmental Protection Agency (EPA) conducted inspections of the following programs: RCRA program, MDE Industrial Wastewater and Storm Water, EPA Clean Water Act and EPA Clean Air Act.

- The Safety Office processed 13 explosive site approvals and reviewed approximately 112 standard operating procedures (SOP), two ballistic test plans, 17 engineering procedures and one work review form. They helped develop several SOPs for the Infrastructure Group, participated in 37 preconstruction meetings, processed more than 363 HAZMAT Authorized Use List requests, conducted 671 facility OSH and explosive safety inspections, and issued over 1,051 safety work permits to identify hazards and mitigations for hot work, chemical, environmental, confined space, fall protection, asbestos, lead, construction, etc. ❖

In December, the Safety Office distributed the pre-recorded 2022 Safety Stand Down with the theme "Safer and Healthier You." ❖

Radiation Safety Program highlights:

- Ionizing radiation producing machines and sources inventory 100% accounted for.

- Completed shielded facility surveys for several command buildings.

- Provided support for new neutron radiation project. ❖

Picatinny Detachment Explosives Safety Officer Gary Best completed all 10 explosive safety self-assessment programs; Best also reviewed and approved two explosive SOPs and participated in two explosive SOP validations. Picatinny's environmental compliance program underwent an Environmental Performance Assessment System inspection by the Army Environmental Command in conjunction with the local Army Garrison Environmental Office. The Enterprise Environmental, Safety and Occupational Health Management Information System was implemented for the detachment to manage hazardous materials on the installation. ❖

EOD DEPARTMENT (D)

As part of the U.S. delegation, members of D Department's International Programs Office and Navy Fleet Liaison Unit attended the 62nd NATO EOD Working Group in Oslo, Norway, in April. In addition to attending the main sessions and providing updates to action items, members engaged in various panel meetings for specific subjects/standard agreements.

The EOD Technology Assessment Branch conducted the rapid large area clearance capability and limitation assessment to evaluate two material solutions in April. The materials were assessed to determine their potential in addressing a statement of need from the EOD Military Technical Acceptance Board. ❖

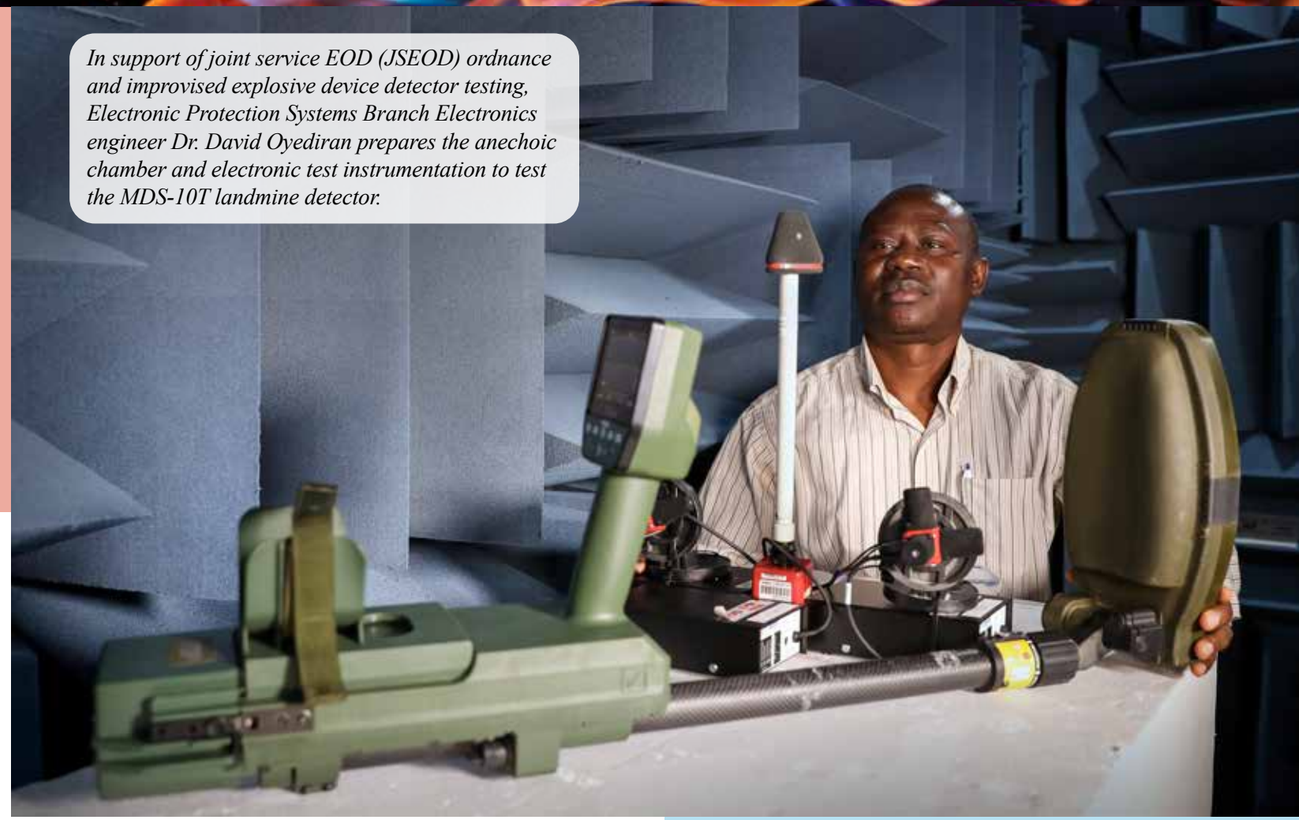
Electronic Protection Systems Branch Sensor Technologist David Rohde proposed the development of a highly efficient, light-weight circular polarized antenna for improved unexploded ordnance (UXO) and improvised explosive device (IED) detection as part of a Naval Innovative Science & Engineering (NISE) Section 219 effort in April. Rohde designed the new antenna in collaboration with the University of North Dakota and the NSWC IHD machine shop fabricated it. ❖

Electronic Protection Systems Branch personnel Sean Bednarek, Thai Do and Rohde worked with service members from the Navy, Army, Air Force and Marine Corps detachments to familiarize them with the operation of the Mark 26 MOD 2 Ordnance Locator and the EOD manual. The exercise was performed at Stump Neck Annex's Magnetometer Test Range, in an area seeded with several buried ordnance items. ❖

Several Electronic Protection Systems Branch employees traveled to NSWC Dahlgren Division in June to get EOD Mobile Unit 12's Mobile Field Kit computers up and running with AN/PLT-5 software. Team members also provided an Explosive Device Electronic Warfare (CREW) training session on the AN/PLT-5 and Universal Test Set. ❖

Electronic Protection Systems Branch personnel tested the baseline and modified MDS-10 UXO and IED systems against the I1B1 backpack, AN/PLT-5 and AN/PLT-4 CREW systems in the division's anechoic chamber in June. The MDS-10 system was identified during subsurface ordnance and IED identification locator analysis of alternatives testing several years ago as a detector of choice for EOD. ❖

In June, NSWC IHD traveled to the Czech Republic to engage in the first EOD Information Exchange Agreement meeting with members of the Czech Republic Army. The delegation was made up of personnel from International Programs Office, 60 Series/CM Procedures Development Branch, Foreign Material Acquisition and Exploitation (FMA and E) Branch, Product Development Support Branch, Marine Corps EOD Detachment and Air Force EOD Technical Detachment. ❖



In support of joint service EOD (JSEOD) ordnance and improvised explosive device detector testing, Electronic Protection Systems Branch Electronics engineer Dr. David Oyediran prepares the anechoic chamber and electronic test instrumentation to test the MDS-10T landmine detector.

EOD Technology Assessment Branch, with boat support from Naval Information Warfare Center Pacific, conducted a demonstration of commercially available and prototype remote underwater firing systems in August. Representatives from each company operated their firing system at a variety of ranges and depths to highlight their systems' capabilities. This demonstration was the first step towards identifying a new remote underwater firing system to replace Navy EOD's Mark 12 Acoustic Firing System. ❖

D Department was tasked with executing an engineering change proposal to replace hazardous non-magnetic copper beryllium and other obsolete hand tools in the Mark 36 MOD 0 rigging and excavation kit. This tool kit is used by EOD teams to assist in the recovery and render safe of magnetically actuated ordnance both on land and in the water. ❖

The 60 Series/CM Procedures Development Branch supported live fire mine countermeasure (MCM) training in August. Underwater subject matter expert (SME) reviewed explosive weights and provided standoff information to help reduce risk to personnel and equipment. Pictured: An Airborne Mine Neutralization System detonates on schedule in Pyramid Cove during an MCM live fire training exercise off the coast of San Clemente Island, California, Aug. 24.

EOD DEPARTMENT (D)

The International Programs Office, EOD Information Management Division's technical library and the U.S. America, Britain, Canada, Australia and New Zealand (ABCANZ) EOD technical project officer traveled to the United Kingdom in September to conduct the annual inspection of NATO at the EOD Technical Information Centre. Results were satisfactory and no additional actions were required.

A delegation of four members from the Netherlands Armed Forces visited EOD Department's International Programs Office, Oct. 18-20, to engage in an EOD Information Exchange Agreement visit. The U.S. delegation is planning a reciprocal visit to The Netherlands in early 2023.

The International Programs Office team traveled to Air Staff Office at the Japanese Ministry of Defense in Tokyo, Japan, to meet with Japan Air Self-Defense Force (JASDF) EOD commanders in August. ❖

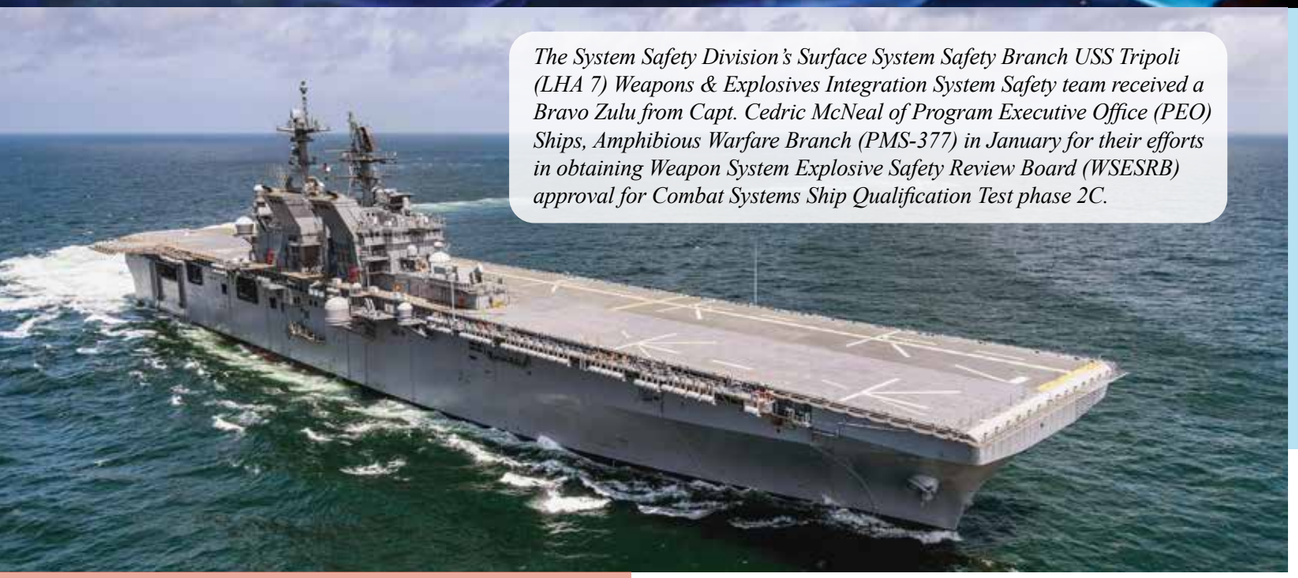
The Weapons of Mass Destruction (WMD)/ IED team supported eight Research and Prototyping IED Defeat (RAPID) and USBTA events this year providing new information and tools to JSEOD as well as public safety bomb squads. The team also supported two Defense Threat Reduction Agency (DTRA) missions overseas providing SME support to a training program to assist foreign partners in EOD missions in a WMD environment. ❖

EOD Information Management Division's Technical Support Center processed 4,116 requests for EOD information. Requests spanned the entire scope of EOD operations ranging from intelligence, identification of UXO and EOD dive operations to unlocking the automated EOD publication set and EOD Portal account access. ❖

EOD Department, along with NAVSEA-00C, participated in the 2022 ABCANZ Diving and EOD Information Exchange Program (IEP) at the New Zealand Defence Force Devonport Naval Base in Auckland, New Zealand, Nov. 2-9. D Department is the technical project lead for the ABCANZ IEP for EOD.

The FMA and E Branch and EOD Department are developing instruction in conjunction with the Evolved Sea Sparrow Missile (ESSM) (pictured) program office to teach foreign EOD programs how to disassemble missiles involved in incidents to avoid disposal at a cost savings. A joint team from FMA and E Branch and the International Programs Office traveled to Yorktown, Virginia, in October, November and December to establish a class for foreign EOD partners that have ESSMs in their inventory.

SYSTEMS ENGINEERING DEPARTMENT (E)



The System Safety Division's Surface System Safety Branch USS Tripoli (LHA 7) Weapons & Explosives Integration System Safety team received a Bravo Zulu from Capt. Cedric McNeal of Program Executive Office (PEO) Ships, Amphibious Warfare Branch (PMS-377) in January for their efforts in obtaining Weapon System Explosive Safety Review Board (WSESRB) approval for Combat Systems Ship Qualification Test phase 2C.

Maritime System Safety Branch personnel received WSESRB concurrence with the tactical deployment of the Salvo-Capable Anti-Torpedo Torpedo Defense System (ATTDS) aboard the USS George H.W. Bush (CVN 77) in May. It was the third deployment of the ATTDS on the George H.W. Bush and the final deployment of the ATTDS.

The Air Force Integrated Product Teams (IPT) Branch / Air Force Life Cycle Management Center IPT met with mission partners from the AGM-86B Air Launched Cruise Missile (ALCM) System Program Office and Global Strike Command in May for a CAD/PAD logistics review at Hill Air Force Base. The team addressed focus areas and efforts to resolve delinquent deliveries on expanding tube release ring initiators and cable assemblies.

Energetic Systems Division's Land & Expeditionary Systems Branch and R Department personnel conducted testing in January of a warhead's ability to penetrate semi-infinite and space rolled homogeneous armor. Testing was conducted at several standoff distances from the warhead to rolled homogeneous Aamor target successfully characterizing the warhead's penetration performance. NSWC IHD designed and fabricated the warhead bodies. ❖

The Land & Expeditionary Systems Branch and the Energetics Technology Division completed the first integrated tactical representation and simulation of payload interface assembly with the Compact Rapid Attack Weapon torpedo at the Pennsylvania State University Applied Research Laboratory. ❖

The Surface Systems Branch provided In-Service Engineering Agent (ISEA) support, primarily for propulsion systems, to all users and variants of the Standard Missile (SM) system and provided Ordnance Assessment Agent support to the SM program in April. E Department employee Matt Blachek spent several weeks in South Korea, participating in the Stockpile-To-Target Sequence review and the Dual Thrust Rocket Motor (DTRM) Rework Site Survey, preparing for a future DTRM Arm Enable Switch repair class as instructor, and inspecting the Igniter circuit test equipment. ❖

The 2022 Joint Enhanced Munitions Technology Program (JEMTP) Spring Review took place April 26-27. The meeting was attended by 250-plus from across the DoD, Department of Energy, and industry. More than JEMTP 40 projects were presented and the forum, providing opportunities for technical collaboration and application/transition discussions. ❖

CAD/PAD Division's Data Management Branch Virtual Fleet Service (VFS) Project Team Lead John D'Alessandro was presented letters of appreciation from Capt. Richard Gensley, program manager for NAVAIR's Precision Strike Weapons Program Office (PMA-201), June 6, in Lexington Park, Maryland for his work with both the F-18/T-45 Navy Aircrew Common Ejection Seat (NACES) Seat Sequencer Thermal Battery (CWDR) Alternate Source Qualification Team and the FY23 Requirements Determination Module Task Force. Gensley also presented an award to the F-18/T-45 NACES CWDR Alternate Source Qualification Team of which several E Department employees were recognized. Patina "Tina" Stewart an ordnance logistics specialist in E Department's CAD/PAD Division, was also presented with a letter of appreciation from Gensley for her work on the FY23 Requirements Determination Module Task Force. ❖

In October, Marine Air-Ground Task Force System Safety Branch employee James Hoover provided systems safety and software support to U.S. Marine Corps Systems Command PEO Land Systems, program management, Ground Base Air Defense, and Marine Air Defense Integrated System programs, which received Laser Safety Review Board concurrence for the Smart Shooter 2000 Fire Control System for non-traditional fielding with no additional exceptions required. ❖

The Land & Expeditionary Systems Branch conducted a hydrogen generator demonstration of a high-altitude balloon (HAB) in February, with support from RDT&E Department's Chemical & Materials Analysis Branch and D Department's Demonstration and Assessment Team. The objective of the program is to develop and demonstrate a portable, easy-to-use package with advanced chemical formulations for in-the-field deployment of HABs, which can be integrated with a variety of different payloads to provide additional range and capability for ground troops, maritime vessels and other expeditionary requirements as needed.

In support of a fleet request from Littoral Combat Ship Fleet Introduction and Sustainment Program Office, Surface System Safety Branch members Christopher Meixell and Joshua Deverse, supported by branch head Dennis Brown, prepared a technical data package and gained WSESRB concurrence for the mixed antisubmarine warfare and surface warfare mission deployment of the USS Oakland (LCS 24). Independence-class vessels typically deploy with a singular mission set. This is the first time a vessel of this class will be able to employ both roles while forward deployed.

The USS Gerald R. Ford (CVN 78) Weapons and Explosives Integration Principal for Safety Craig Pilecki obtained WSESRB concurrence in November for crew training and combat systems operations for first-time operations of the Ship Self Defense System with Mark 38 Machine Gun System and use of magazines/handling paths that integrate the 11 newly certified Advanced Weapons Elevators. ❖

The Tomahawk Energetics Working Group included members from Surface System Branch, CAD/PAD Division, Manufacturing Product Office and Product & Process Scale-up Manufacturing Technology Division and provided energetics engineering support for Tomahawk production, recertification, depot and Service Life Assessment Programs. ❖

E Department's Systems Safety Division gathered at the Mix House onboard NSF Indian Head Dec. 5, for their annual holiday party and division team building event. Festivities included a potluck feast and white elephant gift exchange. This was the first time for many new members to meet their counterparts in the other branches, as the division has grown tremendously since the last pre-pandemic holiday gathering. ❖

In October, E Department employee Robert Rowan supported live-fire test event 1 on the Marine Corps Advanced Reconnaissance Vehicle (ARV) prototype hulls. Hulls from several vendors were subjected to three specific threats as part of data collection supporting requirements development. The ARV, currently managed by the Program Manager for Light Armored Vehicles in Detroit, Michigan, is in the technology development phase and the platform is intended to be a significant step forward in terms of technology and reconnaissance capability.

In June, System Safety Division held its second annual Division Summer Picnic at Gilbert Run Park, in Charlotte Hall, Maryland. Division Director Missi Kennedy recognized outstanding achievement of several of the division's employees, as the three branches bonded over barbeque and a "Battle of the Branches," which included competition in various events, including volleyball, cornhole, horseshoes and tug of war.

SYSTEMS INTEGRATION DEPARTMENT (G)

Guns Division Director Nancy Tillmann toured the Gun Turret Facility with Lt. Carl W. Dowzicky, SME for Surface Gunnery at the Naval Surface and Mine Warfighting Development Center, Sea Combat Division, in March. The group also visited the lab facilities and live firing range for Mark 45, Mark 46, Mark 38 and Mark 110. Personnel from the Minor, Medium and Major Caliber Guns Branches provided overviews of each weapon system and updated the team on naval gunnery training and issues that relate to technical assistance, maintenance and ship modernization efforts. From left to right: Harry Stubbs, Joshua Banning, Zach Rutledge, Alex Warriner, Tom Singer, Lt Dowzicky, Nancy Tillmann, Rob Thomas and Teri Talarsky.

From left to right: Guns Division Director Nancy Tillmann, Lt. Dowzicky and Major Caliber Gun Systems Branch's Zach Rutledge.

G Department's Combat Systems Ship's Qualification Trials team engaged a BQM-74 Chukar series drone to prove the SeaRAM system performance against anti-ship cruise missiles in February. ❖

In March, Naval Packaging, Handling, Storage and Transportation (PHS&T) Center representatives assisted the Shipboard Weapons and Integration Team (SWIT) during a shipboard suitability test (SST) for the Miniature Air Launched Decoy-Navy (MALD-N) container on the USS George H. W. Bush (CVN 77) in March. The SST equipped the Sailors the USS George H.W. Bush with the knowledge to correctly pack, unpack and maneuver the MALD-N from the container. ❖

Ammunition Engineering Support Branch personnel Bill Jurkowski, Roddy Wiggins and Cameron Swett conducted an ammunition surveillance site visit to the Weapons Department, Naval Station Guantanamo Bay, Cuba, Feb. 15 - March 8. The Mobile Ammunition Evaluation and Reconditioning Unit conducted ammunition, explosives and training surveillance in fleet sentencing applications of the NAVSUP P-805. The team inspected 154 line items and corrected packaging and labeling defects on more than 29,000 rounds to ensure forward-deployed Navy units receive ready for issue ammunition.

Mark 46 ISEA personnel Monty Cox and Brian Meyer provided Mark 46 ISEA support for light off and checkout on the USS Michael Monsoor (DDG 1001) port mount in March. During the 10-day mission, the team identified and resolved issues with the turret and shipyard production items. ❖

PHS&T representatives conducted Broderson 15-ton mobile crane safety and operational training aboard the USS Fort Lauderdale (LPD 28) at Huntington Ingalls Shipbuilding in Pascagoula, Mississippi, April 18-22. As a replacement for the ship's overhead crane, the Broderson mobile crane's primary mission was to service Landing Craft Air Cushions (LCAC) in the well deck to simulate LCAC and Ship-to-Shore Connector maintenance. Four Sailors participated and received PHST training letters of certification. ❖

Mark 38 ISEA representatives Kevin MacCheyne and Sean MacDonald conducted a removal and installation "Hot Swap" of Mark 38 MOD 2 machine gun systems (MGS) onboard the USS Arleigh Burke (DDG 51) at Naval Base Rota Spain, March 25 - April 12. The team removed two Mark 38 machine guns and installed two overhauled Mark 38 MOD 2 MGSs. ❖

PHST Center personnel participated in the USS Gerald R. Ford (CVN 78) sea trials in Virginia, Feb. 22-28. During the trial, the revisions to the technical memorandum (TM) were validated for over-the-side handling of Evolved Sea Sparrow Missile, Rolling Airframe Missile and Close-In Weapon System (CIWS) loads using the Broderson shipboard mobile crane.

SYSTEMS INTEGRATION DEPARTMENT (G)

G Department's Medium Caliber Gun In-Service Engineering team collaborated with Picatinny's Range 647 and Naval Air Weapons Station China Lake production facility teams to test the GAU-12 Pneumatic Drive Unit (PDU) at Range 647 in March. Fourteen PDUs were tested and deemed mission capable. The NAVAIR medium caliber guns group at NSWC IHD Picatinny Detachment tested excess units for functionality so they could be returned to condition code B.

Mark 45 ISEA personnel completed the second FY22 Mark 45 Technical Enhancement Training course at NSWC Dahlgren Division's Potomac River Test Range facility in May. The two-week course included mechanical and electrical instructional classrooms, labs and visits to the Gun Barrel Shop and Mark 45 gun mounts. The students' knowledge level of the Mark 45 gun mount operation, ammunition handling system and ability to navigate technical manuals increased from 50% for mechanical and 61% in electrical at the beginning to 90% for both mechanical and electrical by the end of the course. ❖

G Department collaborated with BAE Systems to conduct Mark 110 supervisory training at the NSWC Picatinny Detachment Turret Facility in June. The one-week session addressed Mark 110 57mm capabilities such as rate of fire, missions' surface-to-surface and surface-to-air, along with description, operation, ammunition loading, assemblies, subassemblies and component functionality. ❖

The USS Bonhomme Richard (LHD 6) was decommissioned and sold for scrap following the July 12, 2020 fire. In September 2021, the Ordnance Logistics/Explosive Safety Branch Participating Acquisition Resource Manager (PARM) was notified of excess Ordnance Handling Equipment (OHE) on the vessel, which was considered for Defense Logistics Agency Disposition Services. The PARM team scheduled, funded and transferred the OHE to the Naval Facilities Engineering Command Detachment Earle (PHST Certified Weight Test Facility). In 2022, the OHE was recycled, where 439 out of 558 pieces passed the test and evaluation process and are part of the Ship Replenishment Program. The PARM program realized over 90% cost savings that total $326 million. ❖

The first delivery of the 25,000 insulation boards or spacers arrived ahead of schedule to support the packaging of Mark 200 propelling charges in Mark 14 tanks. The Major Caliber Ammunition team in the Acquisition/In-Service Engineering Branch collaborated with NSWC IHD Contracts Department for the delivery from Kirkland Sales Inc., in Garland, Texas. ❖

The Conventional Ammunition Division's Data Analytics team hosted its Ordnance Validation

Naval PHST Center personnel participated in the SWIT test for the Advanced Anti-Radiation Guided Missile Extended Range aboard the USS George H. W. Bush (CVN 77) in Virginia, March 22-24. Shipboard testing included unpacking and transporting two inert test shapes and containers through the logistic cycles before re-packing them.

off-site at NSWC IHD, Picatinny, New Jersey, Aug. 16-17. Amongst the topics addressed were naval ordnance logistics processes, property management activities, audit, ordnance inventory health and fleet readiness. ❖

PEO IWS hosted the third annual Wartime Acquisition Scalable Plan tabletop exercise, Aug. 9-11. NAVSEA along with Naval Supply Systems Command, Office of the Chief of Naval Operations, Warfare Centers and other naval organizations participated and assessed NAVSEA's ability to respond in a war-time scenario and evaluated risk mitigation strategies G Department, serving as PEO IWS's Ordnance Portfolio Manager, was a key contributor to the exercise, able to bring practical ordnance inventory data analytics into the discussions. ❖

The Guns Division Cybersecurity team, (Tarik Khudairi and Alan Andrews) completed the Weapon System Risk Management Framework process for the MK 110 Gun Weapon System (Step 1 through Step 5) culminating in the issuance of an Authorization to Operate certification by PEO IWS. This assures availability of the MK 110 Gun Weapon Systems deployed on the Littoral Combat Ship (LCS) platforms. ❖

The Self Defense Systems Fleet Support Branch completed the Phalanx equipment removal in support of the ship's decommissioning onboard the USS Monterey (CG 61) and the USS Vella Gulf (CG 72) at Naval Station Norfolk, Virginia in July. The team removed the four weapon systems and associated equipment. The Self Defense Systems Fleet Support Branch also completed SeaRAM technical assistance onboard the USS Jackson (LCS 06) at Naval Station Guam to rectify the track antenna position error. ❖

During a two-week maintenance and training exercise in September, the Mobile Cleaning Recovery Recycle System units were serviced onboard the USS Abraham Lincoln (CVN 72). The Ordnance Logistics/Explosive Safety Branch team also trained the Abraham Lincoln's crew on the proper cleanout and maintenance procedures. ❖

RDT&E DEPARTMENT (R)

NSWC IHD Commanding Officer Capt. Eric Correll takes a knee to speak with Deputy Department Head Aaron Jenkins and his son at the annual RDT&E Department picnic.

RDT&E Department hosted five midshipmen as part of the U.S. Naval Academy's Internship Program beginning in June. This program provides valuable insight to future fleet leaders on the important work performed at Indian Head. The Research and Development (R&D) Division hosted two interns and the CBRD Division hosted the remaining three Midshipmen. At the end of their internships, each Midshipman gave a presentation on their respective projects. Pictured: Front row, left to right –Midshipmen Brenden Frerich, Shreya Shankar and Ashish Venumuddula. Back row, left to right: Scott Kommer, Andrew Pierre and Ryan Luetjen.

In 2016, OPNAV determined a robust biological detection capability should be an enduring capability requirement. OPNAV requested the Joint Requirements Office for Chemical and Biological Defense initiate a modern, upgraded program of record to enhance the current biological point detection system, Enhanced Maritime Biological Detection (EMBD). "The technology behind these enhanced systems is truly state-of-the-art," said CBRD Division's Matt Finch (pictured above), the Navy's project lead for EMBD. Finch has led NSWC IHD's efforts for the program since 2017. CBRD Division's installation team recently began fielding with the first system installed onboard the USS John Finn (DDG 113) in San Diego, California, in June.

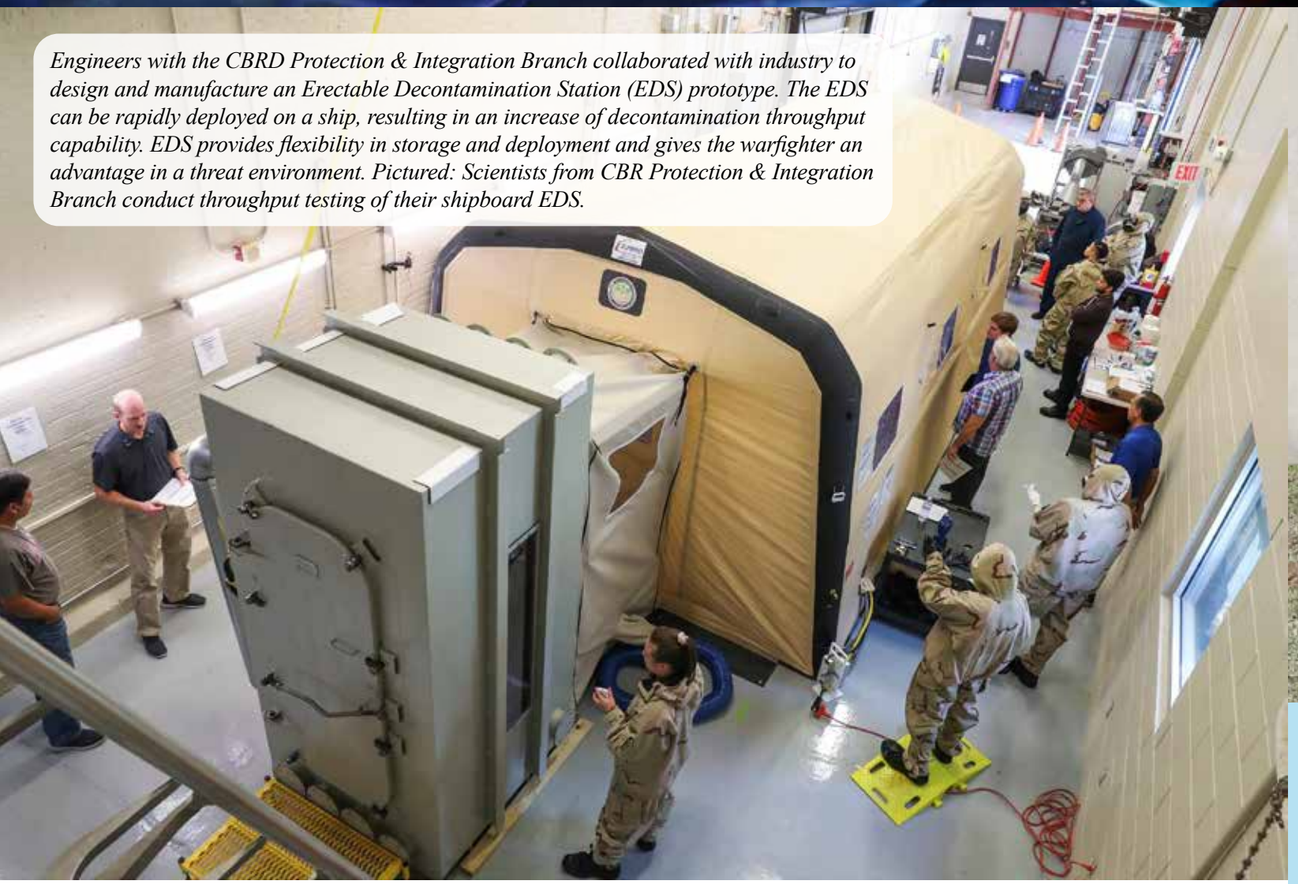
The Ballistics Test Branch completed mission critical environmental testing on the F-18/T-45 NACES CWDR to qualify an alternate source to ensure aircraft were not grounded. ❖

NSWC IHD's CBRD Division personnel completed CBRD equipment assessments at the Aegis Ashore Missile Defense Facilities in Romania and Poland in support of the Missile Defense Agency. The assessments were completed during site visits to each location in March, and better prepared the sites in the event of CBR events from neighboring hostilities in Ukraine. ❖

The Research and Development Division's upgraded four-inch single-stage gas gun was fully approved for operation in April. This test capability is unique within the DoD and is capable of dynamic compression experiments on both energetic and inert materials. The test uses advanced diagnostics including time-resolved spectroscopy and optical imaging. The upgrade effort was led by Dr. Demitrios Stamatis and Dr. Zbigniew Dreger and will support several shock physics-related programs and collaborations. ❖

R Department's CBRD Division collaborated with DoD and academic partners on the "CB10787 In-Ear Wearable Device (EWD) for Predicting Warfighter Readiness" program to develop a customizable EWD that can detect changes in warfighters' health. The group met to test the EWD at the Chemical and Biological Operational Analysis 2022 event at Eglin Air Force Base in Eglin, Florida, May 16-19.

RDT&E DEPARTMENT (R)



Engineers with the CBRD Protection & Integration Branch collaborated with industry to design and manufacture an Erectable Decontamination Station (EDS) prototype. The EDS can be rapidly deployed on a ship, resulting in an increase of decontamination throughput capability. EDS provides flexibility in storage and deployment and gives the warfighter an advantage in a threat environment. Pictured: Scientists from CBR Protection & Integration Branch conduct throughput testing of their shipboard EDS.

The Detonation and Combustion Technology Branch completed a test series at the Bombproof Facility's 50-pound chamber with the Research and Development Division to characterize PBXIH-143 — a new underwater explosive —and predict effectiveness and lethality as part of its qualification in May. PBXIH-143 is a producible underwater explosive with significantly more output than its predecessors. PBXIH-143 will improve the lethality of the U.S. Navy's torpedoes and mines. ❖

Beginning in July, the Nondestructive Evaluation Branch inspected more than 5,000 CADs, completing the process in three months to ensure grounded aircraft were back flying in 18 days and prevented halt of Boeing's production line for seven new aircraft. ❖

CBRD Division's Modeling and Simulation team created the Shipboard CBR Nuclear Performance Model, which starts with a chemical or biological attack against a Navy ship, and ultimately answers the question: Can the ship continue its mission after being exposed to an attack? The project is sponsored by DTRA, and the team is currently in year two of the three-year multimillion-dollar project. ❖

R Department Material Properties Branch completed four-year aging and testing of propellant for the Mark-135 Tomahawk booster in September. ❖

NSWC IHD hosted a groundbreaking ceremony for the CBRD Division's maritime chemical detection laboratory and modeling and simulation center, Oct. 28. Pictured from left: RDT&E Department Head Dr. Heather Hayden, Intercontinental Construction Contracting, Inc. President Ketan Shah, NAVSEA Technical Warrant Holder for CBRD John Larzelere, NSWC IHD Technical Director Ashley Johnson, NSWC IHD Commanding Officer Capt. Eric Correll; NSASP Commanding Officer Capt. Todd Copeland; Army Corps of Engineers Projects and Program Management Division, Military Branch Program Manager Ian Griffith officially break ground on the command's new facility.

Chemical and Materials Analysis Branch is home to an impressive group of analytical experts. Along with their primary focus of R&D of explosive materials, the group also champions the use of novel analytical methods to perform engineering failure investigations. The branch is on the cutting edge of developing modern analytical methods that make NSWC IHD a worldwide leader in energetics R&D. Pictured: Chemical and Materials Analysis Branch Head Jason Steffin transfers a gas headspace sample from a Filco canister to a gas chromatograph for analysis.

ENERGETICS MANUFACTURING DEPARTMENT (M)

M Department's CAD/PAD and Extruded Products Division delivered 241 Low Flame Temperature (LFT) 3A billets under a CRADA. The team collaborated with Pacific Scientific for the Standoff Land Attack Missile-Expanded Response (SLAM-ER) Starter Grain Cartridge that is required in the AGM-84H/K SLAM-ER engine under the purview of the Precision Strike Weapons Program Office (PMA-201). This was an aggressive but successful schedule for the Extruded Products team despite multiple facilities challenges for the critical path starter cartridge LFT-3A billet production and delivery. The AGM-84H/K will be used in a free-flight exercise at Naval Air Weapons Station China Lake the first quarter of FY23 like the U.S. Navy McDonnell Douglas F/A-18C Hornet (left). The aircraft is equipped with an AGM-84 SLAM-ER under the right wing and two AN/AWW-13 Advanced Data Link pods under the left wing.

M Department re-established its role as the Navy's arsenal cornerstone and a trusted partner within NSWC IHD. The department focused on strengthening the plant-aligned teams through restructuring efforts. The team was part of the three-month Edison Campaign, between February and May, to address and resolve pre-production challenges, increase production and maintain safety and quality. During the campaign, the second lean line was completed, and a dedicated pack-out bay was established for increased efficiency. Additionally, there were operational risk management and communication enhancements, cross-training of new and seasoned personnel, equipment repairs and control upgrades to support operational efficiency. ❖

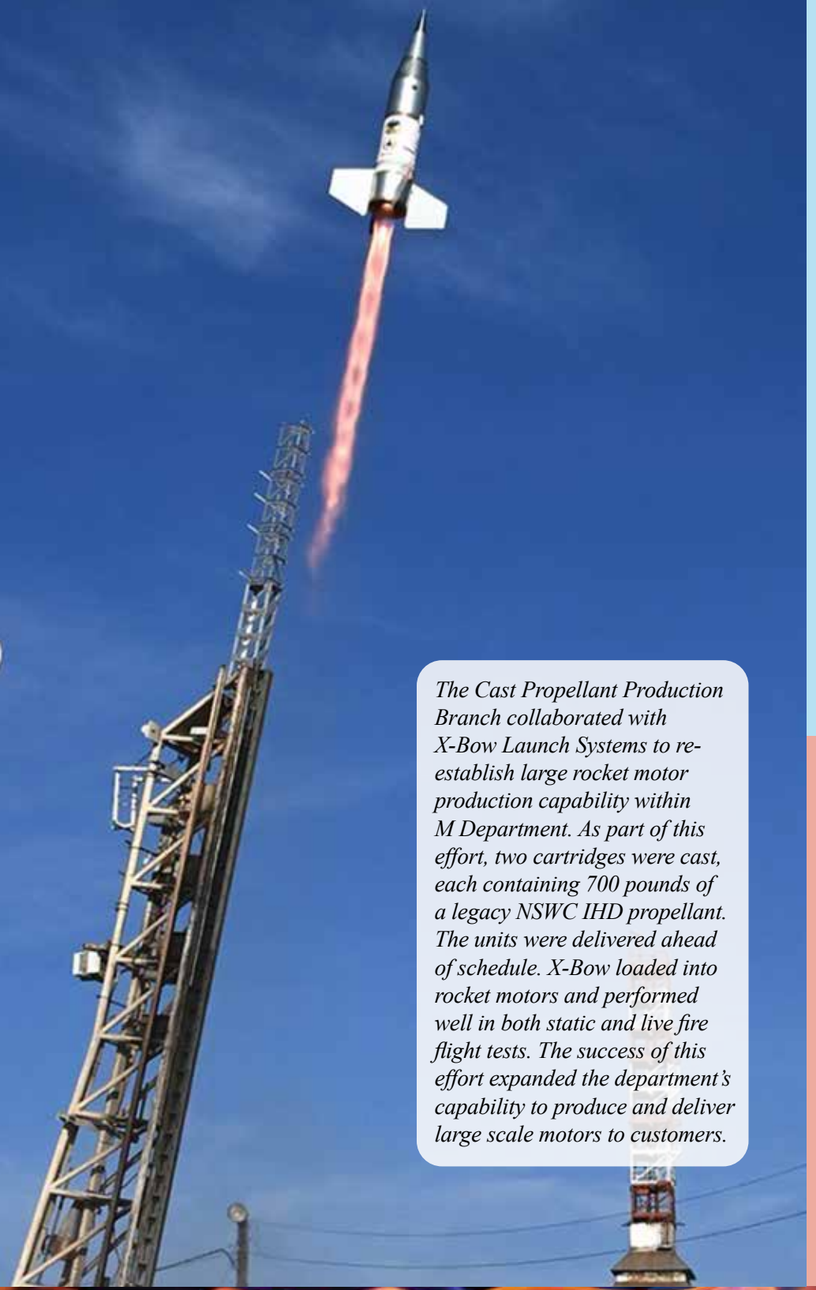
A multidisciplinary M Department/Safety Division team executed the first full spectrum upgrade of the 420-Gallon Vertical Mixer (420GVM) Control System since the facility's initial start-up in 2000. The new 420GVM system started explosive operations in the last quarter of 2022. The control system was augmented with a new mixer hydraulic power unit, renovated vacuum pumps and improved video equipment. These upgrades provide expanded programmable logic and human-machine interface control and monitoring of numerous sensors and safety interlocks. The system enables the Explosives and Energetics Division to fulfill its delivery commitment of critical products to the warfighters. ❖

M Department underwent significant organizational changes during 2022; its final reorganization and restructuring were completed in September. Such changes included the realignment of the McAlester Detachment and creation of the Transportation and Magazine Branch to centralize and streamline the movements of bulk explosives within the department. The Transportation and Magazine Branch is now responsible for the storage and handling of bulk explosives through the execution of driver teams. These teams will also perform magazine inspections, create and follow storage plans, follow vehicle maintenance guidelines, deliver assets to and from operating facilities, identify and resolve ground infrastructure issues and provide access to magazines in support of inventory, service tickets, custody storage and safety inspections. ❖

NSWC IHD Energetic Chemicals Branch Manager Mark Williams (left) and the command's Director of Strategy Andrea Bloomer (center) discuss commissioning and future capabilities for the ACF with Commander, NAVSEA, Vice Adm. William Galinis during a tour of the command, March 15.

Two unique CL-20 explosive formulations were pressed within the Energetics Development and Engineering Branch to improve warhead performance. CL-20 is a highly sensitive explosive that needs to be thoroughly reviewed to ensure the formulations can be pressed safely. To mitigate any hazards, the branch designed and fabricated specialized press tooling. They also developed scale-up pressing procedures, which led to the pressing of the pellets from both CL-20 explosive formulations to support the full-scale warhead test phase. Pictured: CI2 Pellet CL20.

ENERGETICS MANUFACTURING DEPARTMENT (M)



The Cast Propellant Production Branch collaborated with X-Bow Launch Systems to re-establish large rocket motor production capability within M Department. As part of this effort, two cartridges were cast, each containing 700 pounds of a legacy NSWC IHD propellant. The units were delivered ahead of schedule. X-Bow loaded into rocket motors and performed well in both static and live fire flight tests. The success of this effort expanded the department's capability to produce and deliver large scale motors to customers.

The Safety Review Committee completed the Caffee Road Thermal Decontamination Area (CRTDA) in October. CRTDA is used to decontaminate Material Potentially Presenting an Explosive Hazard (MPPEH). It complements the Industrial Waste Processor (IWP) that allows the command to decontaminate MPPEH that cannot be decontaminated at the IWP for various reasons including if the items are too large. CRTDA is expected to play a major role in MPPEH decontamination for the CXM program. The decontamination area has been inoperable for more than a decade. Returning it to operational status is a significant milestone to ensure future successful Explosive Safety Inspections, while helping to keep NSWC IHD employees safe. Pictured: above: CRTDA Burn Pad and right: CRTDA Control Station.

Commander, NAVSEA Vice Adm. William Galinis introduces himself to Product & Process Scale-up & Manufacturing Technology Division Director Dr. Emily Leitsch while touring M Department's facilities, March 15.

X-Bow Bolt Rocket M Department completed mixing operations to demonstrate its capability to safely manufacture Magnesium/Teflon/Viton (MTV). During 2016 and 2020, the department halted manufacturing MTV Types II (pictured) and III – two critical ingredients for several systems of weaponry. NSWC IHD reestablished its competency to function as a safe and reliable source since MTV handling and processing require significant precautions to minimize risks of ignition by electrostatic discharge. The command completed a 20-pound capability pilot scale and advanced to the production scale. The MTV was produced for follow-on assembly in Mark 117 Jet Assisted Take-off motor and Mark 20 Squib deliveries. Pictured: MTV Type II ignition pellets used in the Mark 304 Ignitor which ignites the Mark 117 Jet-Assisted Take-off.

CORPORATE OPERATIONS DEPARTMENT (10)

Chief Technology Officer Dr. Kerry Clark (above left) and Recruiting and Student Outreach Branch Lead Lisa Robey (far left), talk about the NSWC IHD mission with local students at the Charles County Fair, Sept. 16.

The Planning, Policy and Analysis Branch assumed responsibilities from the Labor and Employee Relations Branch for employees' benefits and retirement actions at the beginning of 2022. ❖

Recruiting and Student Outreach Branch lead Lisa Robey collaborated with the Fort Belvoir Wounded Warrior Program in January to assist a wounded warrior candidate new hire onboarding in March. ❖

The Recruiting and Student Outreach Branch participated in the 2022 NAVSEA Virtual Career Fair in March. There were 14 recruiting participants, 458 resumes collected, and multiple job offers were made. ❖

During the month of May, the In-Person Information and Document Center resumed as part of a joint effort between staffing and Workforce Development (WFD). User guides were also provided to the workforce. There were brown bag sessions held in June while the other features continued to be tested. Three Waypoints brown bag informational sessions were conducted with 120 participants. ❖

As the end of the FY neared, onboarding employees increased in August with 55 new hires, almost four times the average monthly total for new hires, in support of meeting the command's hiring goal. ❖

Acquisition Tuition Assistance Program applications were finalized in September. These were provided to the departments' heads for review and approval. There were 44 applicants for FY22. ❖

The Recruiting and Student Outreach team kicked off the fall recruiting season in September. Training sessions were conducted for the command's recruiters as they prepared for recruiting events at colleges and universities across the country. ❖

The Staffing and Classification Branch onboarded 48 new hires in September, totaling 242 new hires for FY22. Due to higher-than-anticipated attrition, the division had to execute 31 more external hires than projected at the start of the year. ❖

The Labor and Employee Relations team worked with supervisors across the command to ensure a 90% completion rate of DEMO end-of-year evaluations. ❖

The HR Division participated in the first ever NAVSEA Warfare Centers Personnel Demonstration Project audit, Oct. 24-28. Three auditors from NSWC and Naval Undersea Warfare Center and sister Warfare Center Divisions reviewed NSWC IHD's performance development, incentive pay, staffing and recruiting policies and case files to evaluate the implementation of the DEMO Project. ❖

The Infrastructure Division's replacement of potable water and the first phase of river water distribution systems supporting both manufacturing and administrative areas reached a milestone in March, with design completion and construction contract award of $77 million. ❖

Infrastructure Division also achieved significant progress in July, with in the MILCON program planning and support for the contained burn project by achieving NAVSEA number one MILCON priority rating for Program Objective Memorandum 2025 construction funding consideration of $48 million. ❖

The Energy Savings Performance Contract (ESPC) initiative, consisting of a public-private partnership, made steady progress in 2022, with completion of an investment grade audit for proposed projects. The goal of the ESPC is to leverage increased resiliency, reliability and efficiency through private upfront funding to construct projects resulting in energy savings payback over the term of a 25- year contract. ❖

The Infrastructure Support Branch completed 3800 demand service tickets, and completed 4,420 maintenance service tickets addressing critical inspection, testing, and maintenance supporting grounding and bonding; fire alarm and sprinkler; weight handling; and HVAC issues. ❖

Infrastructure Division planned and implemented $8 million in paving repairs throughout 2022 with a focus on explosive vehicle transportation routes. ❖

In 2022, NSWC IHD invested $36 million across 67 facility sustainment, restoration and modernization projects including full facility renovations of more than 76,000 square feet of modernized administrative and new lab workspace. ❖

The Corporate Communications Division published 12 editions of the monthly newsletter "The Loop," including several special editions to honor the command's graduates and Honorary Awards recipients and to highlight the technical departments' innovative work. ❖

The Public Affairs branch published 28 press releases and with the Visual Information Branch produced eight livestreams and recorded 13 podcast episodes to share the information about several command initiatives and departments. ❖

The Public Affairs team cleared more than 230 public information requests. ❖

The Visual Information Branch and Public Affairs Branch were instrumental in assisting in the rollout of the command's new SharePoint Online (SPO) intranet site. ❖

The ACIO/Information Technology (IT) Division provided large-scale remote secure access for Navy-Marine Corps Intranet (NMCI) network and Research, Development, Test & Evaluation (RDT&E) network users. IT procurement support included the processing of 518 IT procurement requests (PR), 706 PR approvals and 2545 PR line items in Enterprise Resource Planning. ❖

The IT Operations Branch expanded services to RDT&E users and extended the network while increasing its reliability. The RDT&E Unclassified Network footprint increased 15% to support more than 50 buildings. In addition to replacing 20 end-of-life switches, a new distribution switch increased network speed by an order of magnitude, as well as simplified routing and troubleshooting for improved reliability. ❖

Customer support included the processing of 2,916 NMCI Science and Technology and RDT&E network tickets for approximately 340 RDT&E users. ❖

The IM Customer Services Branch ordered more than 3,000 tech refresh computers and refreshed around 500. Approximately 14,100 NMCI Move, Add, Change requests were processed in support of the command's 3,000 unclassified and classified NMCI/FS users. ❖

CORPORATE OPERATIONS DEPARTMENT (10)

The Infrastructure Division oversaw Capital Improvements (CIP) activities in 2022. The team implemented CIP rating and ranking process improvements, including the development of a CIP project readiness check with "Go" or "No Go" recommendation. The command achieved a 90% obligation rate for planned projects. Pictured: maintenance mechanic Robert Hamilton, fabricating gutter section to install as part of a building renovation project.

The Cybersecurity Branch passed its Command Cybersecurity Readiness Inspection and resolved all findings. The Assessment and Authorization (A&A) team submitted three accreditation packages and achieved 100% system authorization including a new authority to operate for the core RDT&E network and the first operational package for R Department's CBRD Branch. In addition, the A&A team submitted 21 quarterly security reviews and 18 annual security reviews. Using the online NAVSEA system access authorization request (SAAR) tool, the branch processed more than 1,500 SAAR forms across the IT platforms. ❖

During FY22, NSWC IHD Security Division increased command security awareness and compliance through education, process improvement and continuous self-awareness. Notable highlights are that the division supported DoD's continuous vetting requirement, enrolled over 2,500 personnel and submitted more than 700 security questionnaires for 100% compliance. ❖

The team reduced security processing time for new hires by 30% and processed approximately 200 new hire packages. ❖

The Security Division conducted approximately 150 classified material inventories. ❖

The team also sponsored campaigns to reduce material holdings which resulted in disposition of more than 20,000 pounds of classified/unclassified holdings at no extra cost to the command. ❖

A notable achievement for the command is its zero security findings during the Command Cybersecurity Readiness Inspection and Explosive Safety Inspection for Arms, Ammunition and Explosives program. The command's Electronic Key Management System account received an "outstanding" grade and was specifically recognized by the Naval Communications Security Material System for its excellence. ❖

The NSWC IHD Technical Capability Manual was completed in January, including the addition of force protection systems engineering, integration and equipment ashore. The added technical capability helps to align the anti-terrorism/force protection workload that was transferred to NSWC IHD from NSWC Dahlgren and Crane Divisions. The Corporate Business Office Division collaborated with D Department and the CAO on this process. ❖

The Corporate Operations Continuous Process Improvement Office held its first Yellow Belt class in May. ❖

The Corporate Business Office successfully transitioned the NSWC IHD Intranet from the Defense Information Systems Agency's DoD Enterprise Portal Service environment to the Navy's Flank Speed, cloud-based SPO environment, Oct. 1. The transition effort included reviewing 211 existing web pages to determine functionality and what content should be transitioned, assessing 75 custom-built existing applications to determine prioritization for rebuilding and monitoring progress of all rebuild efforts and interacting with and responding to status requests from NAVSEA. ❖

The Records Management (RM) team transitioned to using the Global Electronic Approval Routing System (GEARS) for its workflow processes in November. The transition to GEARS allows the NSWC IHD RM community to easily track and capture required documentation. ❖

The Property Management Division closed out the Navy Material Accountability Campaign (NMAC) initiative. The NMAC items closure promoted cost savings to customers by reducing the Service Cost Center rates. Inventory accuracy was found to be above the 98% NAVSEA requirement rate. ❖

Supply Branch Manager Robert Beach worked with the Naval Sea Logistics Center (NSLC) to ensure mission success was not compromised due to the high staff turnover, to include its director and deputy director. Jointly, NSWC IHD's Property Management Supply Division and NSLC cleared more than 100,000 pounds of scrap including machinery, trailers and a dental truck. ❖

The Purchasing Requisition Branch processed 19,760 line items that resulted in $442 million of material and services provided to support customers. ❖

The EEO, D&I Office hosted the Warfare Center (WFC) Collaborative Holocaust Days of Remembrance, April 28. ❖

EEO D&I Office was involved in the Enterprise Diversity & Inclusion Framework Working Group to develop the functional structure of diversity, equity and inclusion (DEI) within NAVSEA and subordinate commands. ❖

The command's EEO's D&I Office developed the standard script for the WFC Deputy Director EEO's to use when presenting the Propel training course for new supervisors, which ensures consistency of information. ❖

EEO, D&I Office facilitated approximately 1,900 hours of culture training in 2022 through a variety of platforms offered by the Learning Culture Program. ❖

Through the efforts of the EEO D&I office, the command achieved its Defense Organizational Climate Survey (DEOCS) participation goal of 50%. ❖

Navy Enterprise Business Office (NEBO) conducted the first ranking session for Navy Identity Service/ Identity, Credential, and Access Management and ranked 62 engineering change proposals. ❖

NEBO also completed a vessel revaluation requirement pilot for the Office of Financial Operations. ❖

The NEBO team completed the ranking for the Navy Enterprise Resource Planning working group on the five new requirements submitted for FY23. ❖

NEBO received the Bureau of Naval Personnel approval for Human Resources link access for the General Fund Business Office. ❖

CONTRACTS DEPARTMENT

Contracts Department hosted its annual picnic and awards ceremony in June. It was the first time since the pandemic that the staff attended the event in person.

In July, Rachel Krawczyk and Alex Polster (pictured far right) joined NAVSEA Contracts as part of the Naval Undersea Warfare Center (NUWC) Newport Procurement Surveillance Program Audit team.

One hundred and twenty-five NSWC IHD employees were trained on the Procurement Management Tool (PMT) requirements this year. The successful deployment of PMT to the business and technical departments enabled the Contracts Department to transition submission of contract actions from emails to Procurement Initiation Documents in PMT, June 1. PMT is a tool adopted from NAVAIR to manage the contracting process and was announced by NSWC headquarters as the required contracting system to promote commonality and consistency with contract tracking and execution across the Warfare Centers. All departments are well represented in PMT with more trainees registering monthly. ❖

The Technical Acquisition Specialist Community of Practice (TAS COP) was championed by command leadership with each department identifying at least one TAS. The TAS COP is driven by the command's mission to outpace the adversary through knowledge creation of the acquisition process and championing a collaborative relationship to achieve early planning and timely execution. The team expects to increase technical proficiency and maintain accountability with daily drumbeats and monthly meetings. The TAS COP kicked off in October. ❖

CONTRACTS DEPARTMENT

Contracting Division C hosted an event at the NSF Indian Head Stars and Stripes Bowling Alley at the end of September to celebrate a successful end of FY22.

In 2022, the Contracts Department completed 1,443 actions with a total obligated amount of more than $348.9 million for FY22. Major highlights include:

- $22 million indefinite delivery, indefinite quantity (IDIQ) manufacture, testing and spare parts of metal weapons containers contract for DoD. The specified metal weapons containers include conventional weapons, precision extruded metal missile containers, torpedo containers, warhead containers, guidance section containers, utility containers, lightweight metal containers and International Organization for Standardization Ocean shipping containers.

- $64 million IDIQ CIWS Installation Team (AIT) contract support to the fleet. This contract provides functional support of an AIT with the installation of ship alterations, ship change documents and ordnance alterations for CIWS on Navy, Army, Coast Guard and foreign military sales vessels.

- $25 million contract Mark 38 MOD 3 Machine Gun System (MGS) Ordnance Alteration spares kits and installation for the fleet. This contract fulfills specified requirements and technical performance requirements for the Mark 38 MOD 3 25 mm MGS ordnance alteration and provides additional spare parts. Once installed, the version incorporates two-axis stabilization, an improved Electro-Optical Sight System, improved multi-function display, modified main control panel, a new main computing unit, a 7.62mm machine gun and remote-control operation.

- $50 million contract in support of three large IDIQ contract vehicles supporting Anti-Terrorism Force Protection program for deployable armories, magazines and optional accessories.

- $58 million for support services contract and more than 100 orders and modifications in support of D Department's Demonstration and Assessment Team.

- $24 million in support of several large procurements for D Department, including countermeasures support services.

- $53 million for procurement, equipment logistics and support for all IdentiFINDER components of the AN/PDX-2 Radar Detection, Indication and Computation Set and Inductively Coupled Plasma Mass Spectrometer.

- $21 million contract action in support of NAVSEA Supervisor of Salvage and Diving Support Services.

- $54 million for technology development and transition support.

- $50 million for cost engineering support services.

- $163 million in contract support across 18 awards under the NEST OTA for prototype projects.

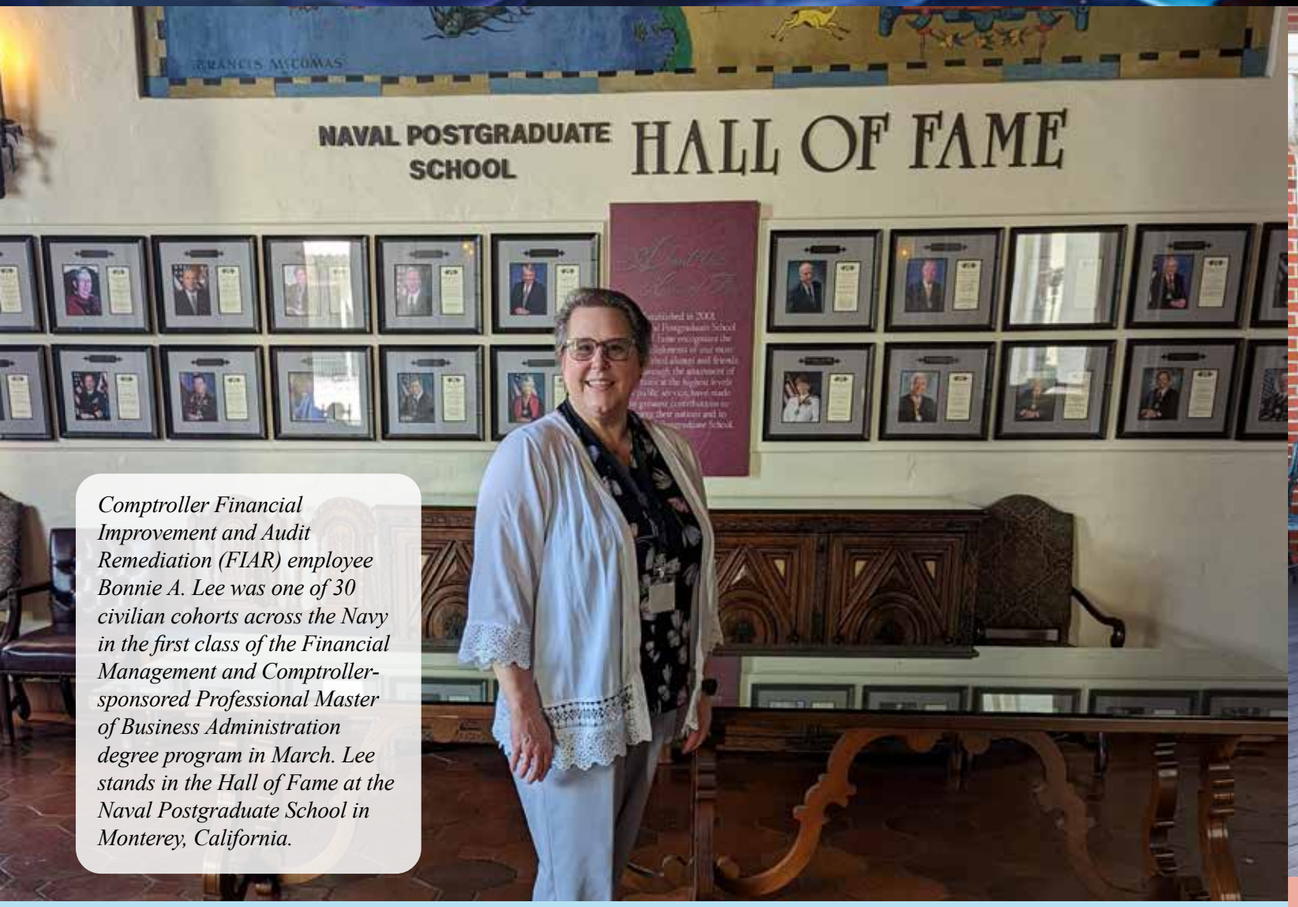
- $9 million for more than 5,000 Purchase Card (P-Card) transactions across the command under the P-Card Office's oversight.

- 440 simplified acquisition actions supporting the needs across the command.

- $8 million contract for construction and repairs across the command and several large contract awards in support of NOSSA and NEBO. ❖

The Contracts Department responded to more than 130 data calls and closed out a successful year with a satisfactory or higher customer survey rating for more than 97% of contract actions. ❖

COMPTROLLER DEPARTMENT



Comptroller Financial Improvement and Audit Remediation (FIAR) employee Bonnie A. Lee was one of 30 civilian cohorts across the Navy in the first class of the Financial Management and Comptroller-sponsored Professional Master of Business Administration degree program in March. Lee stands in the Hall of Fame at the Naval Postgraduate School in Monterey, California.

The Comptroller Department gathered for some fun in the sun, June 17. Hours of focusing on blue screens were replaced by hours under the blue sky. The department's "grill masters" Erica Spurlin and Kiara Turner kept the crowd fed.

On April 20, the Comptroller hosted a departmental all hands Teams hybrid meeting, April 20, at the Mix House on NSF Indian Head. The department celebrated its successes and discussed future goals in a unified environment.

NSWC IHD and Comptroller Department hosted the FY22 NSWC/Naval Underwater Warfare Center Comptroller Community of Practice face-to-face Meeting, May 17- 19, at CSM Velocity Center, Indian Head, Maryland. The event provided the opportunity for division comptrollers to gain insight into the financial challenges at NSWC IHD with an emphasis on the manufacturing operations and underutilized plant capacity. Areas of discussion included the future state of the Comptroller organization, reporting of business performance measures, and developing standard efficiency metrics and data visualization for the Warfare Center Executive Dashboard. The final day allowed for the group to tour the command's specialized manufacturing facilities and gain a unique firsthand view of the command's infrastructure challenges.

COMPTROLLER DEPARTMENT

Comptroller employees visited Picatinny detachment's Business Financial Managers to provide an overview of the upcoming implementation of the G-Invoicing process and discuss G Department Financial Budget and Execution in November. Pictured are Budget Officer Tiffany Maston (third from top left), Funds Management Lead Jennifer Krikstan (fourth from left), and Corporate Budget Officer Louis Chaverini (fifth from top left).

Comptroller Department employees and their families enjoyed each other's company, food and laughter at the Blue Dog Saloon in Port Tobacco, Maryland Dec. 2. This was needed following a year of collaborative effort, virtual meetings and rotating days in office.

Command Comptroller Thomas Raleigh and Deputy Comptroller Sara Gunderson were pivotal in the 12 week study of NSWC IHD conducted by a large international management consultant firm for several months during CY22. The study was a deep dive into NSWC IHD's operations as a working capital funded organization. In depth reviews were conducted of the total operational costs to operate the arsenal and considerations of viable business and investment model alternatives relevant to successful manufacturing operations and facility improvements. The future focuses on financial transparency to support strategic business decisions in operating a successful Navy arsenal. ❖

The FIAR team was on "FIAR" over the summer designing and implementing a semi-automatic approach to auditing samples for internal control testing. The team does not develop requirements but verifies compliance with existing laws, regulations, instructions and manuals. The testing efforts bring awareness to areas of weakness and recommendations for process improvements. Every action taken at the command, either directly or indirectly, has a financial effect and impacts the auditability of the financial statements. Pictured: The team develops semi-automated testing for audit sampling. Pictured from left to right: Scott Maddox, Jacob Carter, team lead Linda Magee and Bonnie Lee.

The Dormant Account Review - Quarterly (DAR-Q) team, including lead Dasha Fletcher, Scott Maddox, Jacob Carter and Tracy Leadmon migrated the DAR-Q process from Enterprise Data Warehouse to Advancing Analytics or ADVANA, a central hub for advanced analytics. DAR-Q seeks to improve DON's ability to use available appropriations and to ensure remaining dormant obligations are valid and liquidated before the cancelation of the appropriation. Each quarter, Comptroller Department's DAR-Q team works closely with NSWC IHD departments' business financial managers to complete the DAR-Q certification. Pictured clockwise from top right Irene (Dasha) Fletcher, Tracy Leadmon, Jacob Carter and Scott Maddox collaborate with the business financial managers to validate open obligations.

Employee Services Division financial management analyst Caitlin Armstrong was selected for the Leadership and Enterprise Exposure Program. This program offers employees the opportunity to meet and interact with NAVSEA leadership during site visits in order to gain a better understanding of the enterprise and how their organizations contribute to the mission. Armstrong joined several other command employees at a visit to the command's G Department at Picatinny Arsenal in New Jersey. Pictured from left: Armstrong, Bryce Betz, David Barlieb, Jimmy Chisholm, Capt. Eric Correll, Tommy Singer, Mike Beekwilder and G Department Director Dave Rogers.

INNOVATION AND PATENTS

Innovation

Beginning in March, D Department's Information Management Division's Small Tactical Enterprise WAN (STEW) field communication kit was transferred to Navy EOD Group 2 at Joint Base Little Creek-Fort Story, Virginia, for it to become a future asset to the EOD community. Through collaboration with Expeditionary Exploitation Unit 1, the kit was prepared for a hasty deployment where it can better serve warfighters in active U.S. military operations supporting current crises occurring in the European theater of operations. ❖

The Gray Data team created a product that uses social media as a source for finding ordnance-related information and propagating that information to the JSEOD field via the EOD Portal. Gray data is a new process where as soon as something new is discovered, by EOD reports, intel reports or open source, the Gray Data team verifies the item and creates a new "subject" allowing the EOD community at large to find it via search on the portal. ❖

D Department's Electronic Protection Systems Branch personnel Dr. Joseph Friedel, Dr. David Oyediran and David Rohde published "Ground Penetrating Radar Antenna Evaluation" for presentation at the 44th Annual Antenna Measurement Techniques Association conference in Denver, Colorado, in October. This paper documented the work accomplishments performed as part of a NISE proposal selected in FY22. ❖

Patents

U.S. Patent Number 11,278,367
Portable and Collapsible Apparatus for Holding Fiducial Markers
Angel Diaz, David Rivera-Marchand, Lonnie Frericks, Andrew Wojtkowski and Anthony Kummerer
A portable and collapsible apparatus for holding fiducial markers has a first section that includes a frame, an opposite second side, a first panel attached to the first frame and fiducial markers attached to the first panel. The apparatus includes a second section pivotably attached to the first section and a second frame, an opposite second side, a second panel member attached to the second frame and fiducial markers attached to the second panel. (03/22/2022)

U.S. Patent Number 11,286,269
Synthesis of Copper Azido-based Energetic Compounds
Andrew T. Kerr, Colt T. Hendley, IV and Owen T. O'Sullivan
Methods for synthesizing in situ two energetic compounds. A first energetic compound being characterized by a first local structure that features metal centers bound by 1-tetrazole, 4-cyanobenzene and azide molecules, while a second energetic compound is characterized by a second local structure that features metal centers bound by 1-methyltetrazole and azide molecules. Both energetic compounds may further be characterized as crystalline coordination polymers. (3/29/2022)

U.S. Patent Number 11,287,328
Thermocouple Protection Gauge
Michael Soo, John-Mark Clemenson, Jr., Michael S. Kessler, Adam W.Sims and Sam Goroshin
A thermocouple (TC) protection gauge may guard TCs from flying debris and fragments in an explosive environment or demanding commercial environments. The gauge may contain multiple co-located TCs. By using the protection gauge, the survivability of the TCs is significantly increased and allows for a longer time frame of data collection. (3/29/2022)

U.S. Patent Number 11,287,569
Ruggedized System and Method for High-speed Imaging of Explosively Generated Flow
Michael Soo and Meghan Bash
A high-speed imaging system for capturing images of flow created by initiation of energetic material includes a lens collector disposed in a protective shield. The protective shield helps protect the lens collector from damage due to the blast event. (3/29/2022)

U.S. Patent Number 11,377,019
Container Truckload Restraint Feature (CTRF) Incorporated in Extruded Side Wall (ESW) Ordnance Containers
Robert J. Van Schaack, Matthew A. Boyer and William M. Wheeler
The apparatus includes metal elongate plates shaped to be received through open ends of the aluminum extruded side walls found on munition containers. The apparatus, in combination with conventional tractor trailer truck gear, functions to provide lateral and longitudinal support to a stack of containers. (7/5/2022)

U.S. Patent Number 11,401,281
Synthesis of Copper Azido-based Energetic Compounds
Colt T. Hendley, IV Andrew T. Kerr, and Owen T. O'Sullivan
A method for synthesizing an energetic compound via direct assembly. The energetic compound being characterized by a local structure that features four crystallographically unique copper atoms bound by nine unique azide molecules and one tetrazole molecule with potassium ions to form a salt. (8/2/2022)

U.S. Patent Number 11,415,399
Ignition Apparatus for Projectile
Kyle Matthew Beckett, Earle Monroe Sparks, Xavier Omar Velez-Ocasio, David Reinaldo Gonzalez and Greg Young
Exemplary embodiments of an ignition apparatus are disclosed herein. Each ignition apparatus is configured for use in a projectile, such as an artillery projectile, rocket, missile, drone and other similar projectiles. In each exemplary embodiment disclosed herein, the ignition apparatus initiates an ignition sequence that is the reverse of the ignition sequences implemented by conventional ignition devices that utilize pre-loaded or pre-compressed spring-operated firing pins. (8/16/2022)

U.S. Patent Number 11,440,873
Method Of Electrochemical Substitution of Azides for Hydrogen on Tertiary Carbons
Farhad Forohar and Victor Bellitto
It provides a method of substituting an azide for hydrogen bonded to a tertiary carbon atom. A liquid mixture in an oxygen-free environment has spaced-apart carbon and platinum electrodes disposed therein. (9/13/2022)

U.S. Patent Number 11,451,189
Method for Improving Mechanical Integrity of Crystalline Silicon Solar Cells Edward E. Foos and Richard Jason Jouet
The invention improves mechanical integrity of a crystalline silicon solar cell, which has an exposed layer of n-type silicon. A solution of electrically-conductive nanowires in an inert liquid is sprayed onto the exposed layer in order to form a grid pattern of the nanowires on the exposed layer after the inert liquid dries or evaporates. (9/20/2022)

U.S. Patent Number 11,460,282
Insensitive Munition Initiation Canister
James Wade, Angel Diaz, Lee Foltz and Daniel McCarthy
An insensitive munition initiation canister includes a first cylindrical body having an external surface, which includes a first set of threads arranged circumferentially around the first cylindrical body. It also has a second cylindrical body connected to the first cylindrical body, including an external surface that has a second set of threads arranged circumferentially around the second cylindrical body. (10/04/2022)

U.S. Patent Number 11,481,093
Method and System for Determining the Location in 3D Space of an Object Within an Enclosed Opaque Container
Angel Diaz David Rivera-Marchand, Lonnie Frericks, Andrew Wojtkowski and Anthony Kummerer
A method and system for determining the location in 3D space of an object of interest within the interior region of an enclosed, opaque container. The invention allows a user or operator to construct a 3D representation of the interior region of the container to allow viewing of objects, components and substances within the interior region. (10/25/2022)

U.S. Patent Number 11,486,836
Method and System for Determining the Location in 3D Space of an Object Within and Enclosed Opaque Container
Angel Diaz David Rivera-Marchand, Lonnie Frericks, Andrew Wojtkowski and Anthony Kummerer
A non-transitory computer readable medium that stores machine-readable instructions that, when executed by at least one processor, cause the processor to determine the location in 3D space of an object of interest within the interior region of an opaque container. (10/25/2022)

U.S. Patent Number 11,506,465
Apparatus and Method for Disrupting/Disabling Explosive Ordnance
Lee Foltz, Adam Pegouske, Daniel McCarthy and George R. Torres
Explosive devices may be formed from hollow members filled with explosive materials. The hollow members may be made of mating halves that are packed or loaded with explosive material prior to the mating halves being joined together. (11/22/2022)

M Department production engineer Albert Wright received the Modern-Day Technology Leader award at the 2022 Black Engineer of the Year Awards (BEYA) STEM Conference, Feb. 17-19, Washington, D.C. The BEYA in STEM recognizes innovative leaders and the Modern-Day Technology Leader award honors individuals who are shaping the future of engineering, science and technology.

Three CBRD employees were recognized with coins from the Deputy Assistant Secretary of Defense for Chemical and Biological Defense. Senior program manager for CBR Detection Branch and sole Navy liaison officer to the Joint Program Executive Office for Chemical and Biological Defense Mark Brown, senior biologist Dr. Benjamin Kirkup, and Navy CBR fleet liaison Chuck Lansing were all presented with their coins, March 2. Pictured (from left): Commanding Officer Capt. Eric Correll, Kirkup, Lansing, Brown and Technical Director Ashley Johnson.

Navy Superior Service Award
Glenn Hooks
Amy O'Donnell

Navy Meritorious Civilian Service Award
William Borgelt
John Hurley
Darrin Krivitsky
Karrie Sandagger
Frank Tse
Ralph Lee Gootee Jr.

Navy Civilian Service Commendation Medal
Dottie Tackett
Christina Adams

Navy Civil Service Achievement Award
Scott Bumgarner
Janet Virgin

EXU-1's Dr. John McCarthy received the University of Virginia's (UVA) Adelle F. Robertson Award in June, which recognizes faculty members who demonstrate excellence in teaching and a commitment to public service. McCarthy serves as EXU-1's senior program advisor and the Operational Requirements, Resources, and Continuous Improvement Department head and provides analysis, advice and continuous improvement consultation to command leadership and management personnel at EXU-1. At UVA, he serves as part-time faculty at its School of Continuing and Professional Studies, teaching a variety of graduate level and professional subjects. ❖

Three CBRD Division employees were honored in June with the Department of the Army Civilian Service Commendation Medals. Joseph Novick, Kristi Lindberg and Richard "Chip" Warder were recognized for their exemplary performance and service for the Negatively Pressurized Conex (NPC) program, a critical piece of the response to the United States Transportation Command's joint urgent operational need for high-capacity airlift of passengers during the COVID-19 pandemic from March 30, 2020, to Dec. 31, 2021. The trio was credited with saving more than 300 lives. ❖

NSWC IHD's WFD team was recognized with an Excellence in Human Resources Award during the NAVSEA Excellence Awards ceremony, July 20. The WFD team was acknowledged for its diligence and perseverance in increasing training opportunities and addressing developmental needs across the command. The team was selected from among 256 highly competitive nominations received by NAVSEA headquarters. WFD team pictured from left to right: Angela Solano, Chris Rose, Shelby Clark, Angie Amen, Jalynn Clancy and Bradley Rumbel.

Reservist EOD Petty Officer First Class (EWS/EXW/FPJ) William J. Eisenhart, EXU-1, was presented the 2021 NAVSEA Sailor of the Year award, April 22, at the Washington Navy Yard. EOD1 Eisenhart (second from left) won in the reserve category and serves as an EOD technician for EXU-1. Also pictured: NAVSEA Commander Vice Adm. Bill Galinis (left), NAVSEA Command Master Chief (SW/AW) Justin Gray (right) and NAVSEA Executive Director Ms. Giao Phan (center right).

Two individuals and two teams from NSWC IHD were honored at the 2022 Warfare Center Awards in July. Linda Magee (bottom right) and the Warfare Centers' Research Commons Team won the Knowledge Sharing Award. Michael Sawchak (bottom left), project manager for the Airborne Expendable Counter Measures program, won the Technical Support Services Award. The John C. Mickey Award for Collaboration went to the Warfare Centers' Barracuda team including NSWC IHD employees (top left from left) Elo Agbaike, Tom Deloache, John Glinko and Halima Khatun.

Lt. Patrick Gest, EXU-1, received the Rear Admiral Draper L. Kauffman Leadership Award in Virginia Beach, Virginia, Sept. 30. Gest has been with EXU-1 since January 2020. He deployed to Commander U.S. 7th Fleet from EXU-1 and pushed creative initiatives during the difficult operating environment caused by the COVID-19 pandemic. In addition, he served as the deputy mission commander for the Commander, Task Force 75-led effort to recover the U.S. Navy F-35C Lightning II sunk in the South China Sea in January. Retired Rear Adm. Joseph DiGuardo Jr. (left) and Adm. Darly Caudle, Commander, U.S. Fleet Forces Command presented Gest (center) with the award.

Human Resources Division employee Jennifer Hughes was selected for the 2022 NAVSEA HR Community for the Collaboration Award and WFD's Chris Rose was selected for the 2022 NAVSEA HR Community for the Leadership Award. Rose received the NAVSEA HR Community Leadership Award for being a leader who accepts and outperforms new and challenging tasks. Rose's award was the only leadership award given from across all 10 Warfare Centers. Hughes received the NAVSEA HR Community Collaboration Award for her collaboration across the HR enterprise, providing exceptional customer care to the NSWC IHD workforce. ❖

E Department employee Halima Khatun was part of a team which received the NAVSEA Warfare Center John C. Mickey Award for Collaboration (Warfare Centers' Barracuda Team). Other NSWC IHD team members who received the award included Elo Agbaike, Tom Deloache and John T. Glinko. In collaboration across NSWC Carderock, Indian Head, Newport, Panama City, and Philadelphia Divisions, the team prepared for the Barracuda Critical Design Review by executing the Barracuda System Requirements, System Functional and Support Equipment Preliminary Design reviews. ❖

2021 Honorary Awards

From handling urgent fleet requests, to working together effectively and efficiently to ensure our workforce had what they needed at all times, the command's Honorary Award winners demonstrated their commitment to the command's tenets, to the fleet and to each other.

Robert B. Dashiell Award for Excellence
Craig M. Pilecki

Dr. George W. Patterson Award for Outstanding Accomplishment
Terrence L. Connell

Joe L. Browning Award for Managerial Excellence
Sara D. Gunderson

Admiral Harold R. Stark Award for Innovation
Valja S. Collingwood, Lee R. Foltz and Chad W. Smith

A.J. Perk Outstanding Operator/Technician of the Year
Shane M. Buzby (R) and Johnnie N. Hart

Captain H.E. Lackey Award for Community Service
Janine Van Niekerk

Continuous Process Improvement Award
Robert D. Breaux, Robin K. Breaux,
Matthew E. Lohn and William R. Wilson

Equal Employment Opportunity, Diversity & Inclusion Award
Rebecca A. D'Ambrosio, Lisa M. Griffith,
Michelle L. Hinkle, Johnna L. Robinson,
Shari L. Thomas, Barbara Wagner and Stuart J. White

Internal Customer Service Award
Austin O. Garruba

Excellence in Business Operations Award
Eric R. Arcement

Excellence in Project Management Award
Dr. Jill T. Phillips and Dr. Alfred J. Wooten

Excellence in Quality Execution Award
Kelly J. Maguire

Excellence in Systems Engineering Award
Todd R. Rininger

Excellence in Safety Execution Award
Alexis D. Leaf

Roger M. Smith Team Award
Timothy E. Appleby, Thomas E. Breen,
Jock D. Brewer, Thomas P. Byerley,
David D. Clark, Dale R. Cornette,
Nicholas R. Falcone, Sean C. Hancock,
Johnnie N. Hart, Dr. Anne F. Haslam,
Darryell T. Johnson, Christina M. Kasmer,
Emily K. Leitsch, Dr. Darlene Z. Galloza Lorenzo,
John R. Luense, William W. Marks,
William T. McConnell, George W. McDaniel,
Thomas P. McGrath, Dr. Joseph D. Olles,
Samuel C. Paras, Erik W. Saar,
Gabrielle I. Sandy, Stephen N. Stiles,
Garvin W. Thomas, Melvin J. Thomas,
Dr. Francis G. Vangessel, John J. Van Kirk,
Daniela Wagus, Mark A. Williams and Travis H. Yon

Spirit of Indian Head Award – The Rising Star
Gabrielle I. Sandy

Spirit of Indian Head Award – The Emerging Legend
Dr. Demitrios Stamatis

Spirit of Indian Head Award – The Legend
Gary L. Williams

NSWC IHD employees were recognized for their significant accomplishments at the command's annual Honorary Awards ceremony, May 17, at the CSM Velocity Center.

EVENTS AND VISITS

NSWC IHD Commanding Officer Capt. Eric Correll (left), Technical Director Ashley Johnson (center) and Arkansas House Representative Rick Crawford (right) discussed the changes to NSWC IHD in the last several years during Crawford's visit to the CSM Velocity Center in Indian Head, Md., Jan. 20. The purpose of Crawford's visit was to discuss the EOD Technology and Training program, to learn more about NSWC IHD's Battle Lab capability, and to tour the USBTA's new Maryland Technology Center.

Representatives from the Office of Financial Management and Budget and NAVSEA's Comptroller Office visited the command, April 7. The representatives, along with NSWC IHD employees, toured the Detonation Science Facility to learn about the facility's test capabilities.

NSWC IHD, in conjunction with the National Armaments Consortium, held a NEST OTA collaboration event, Jan. 18-19. The two-day event featured discussions on topics such as emerging challenges and opportunities and presented upcoming requirements for prototype projects.

M Department startup lead engineer Scott Buswell discussed operational procedures and capabilities of the ACF with students from The Eisenhower School for National Security and Resource Strategy, April 21. The Eisenhower School prepares select military officers and civilians for strategic leadership and success in developing national security strategy and in evaluating, marshaling and managing resources in the execution of that strategy.

EVENTS AND VISITS

Naval Surface Warfare Center/Naval Undersea Warfare Center Commander Rear Adm. Kevin Byrne, provided remarks at the USBTA grand opening and ribbon-cutting ceremony in Indian Head, Md., May 13. The new facility will allow the command and the association to continue their collaborative efforts bringing new ideas and technology to the EOD community.

NSWC IHD R Department's Test & Evaluation Division Director Samantha Gray (right) discusses the Detonation Science Facility's test capabilities with NSWC IHD Commanding Officer Capt. Eric Correll (left), Commander, NSWC and Naval Undersea Warfare Center Rear Adm. Kevin Byrne (left center) and Principal Military Deputy Assistant Secretary of the Navy (Research, Development and Acquisition) Vice Adm. Francis Morley (right center) during a tour of the command, Oct. 31.

Performing in the Duties of Assistant Secretary of the Navy for Research, Development and Acquisition Tommy Ross visited NSWC IHD to discuss modernizing the Navy's industrial base, while also touring the facilities and meeting with command employees to better understand the manufacturing capabilities of the Navy's only arsenal, August 31.

NSWC IHD M Department Head Dr. Phillip Cole gives an overview of the command's energetics manufacturing capabilities to Deputy Assistant Secretary of the Navy for Budget Director Fiscal Management Division, N82, Office of the Chief of Naval Operations Rear Adm. John Gumbleton during a tour of the command's manufacturing facilities in December.

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