PART 2: PICATINNY'S ARMAMENTS HISTORY

PAGES 6-7

PAGE 5

FIREPOWER AWARDS

SLINGING FOR STEM

PAGE 10

THE PICATINNY VOICE

Vol. 30 No. 15 https://www.pica.army.mil/evoice Published in the interest of the Picatinny Arsenal, N.J., community November 10, 2017

Picatinny breaks ground on $8.4 million co-generation energy facility

Picatinny Arsenal Public Affairs

The senior-most official on Army installations helped to break ground on an $8.4 million energy co-generation plant at a ceremony here on Nov. 7.

Participating in the ceremony with Acting Assistant Secretary of the Army Installation Energy and Environment, Jordon Gillis, were Picatinny's Senior Commander, Brig. Gen. Alfred Abramson; Garrison Commander, Lt. Col. Jeffrey Ivey, and Senior Vice President of the Federal Business Unit Energy Systems Group, Steven Spanbauer.

The new facility will help the arsenal become more energy efficient and resilient by providing two megawatts of baseline electricity for its power grid and steam for heating and for mission processes.

A new co-generation facility at Picatinny is expected to make the Arsenal more energy efficient. Breaking ground are, from left, Brig. Gen. Alfred F. Abramson III, Senior Commander; Jordan Gillis, Acting Assistant Secretary of the Army Installations, Energy and Environment; Steven Spanbauer, Senior Vice President, Federal Business Unit, Energy Systems Group; and Lt. Col. Jeffrey Ivey, Garrison Commander.

"This $8.4 million, 2-megawatt co-generation facility is one project of seven, totaling near $17 million," said Ivey, Picatinny Arsenal Garrison Commander.

"Each project is energy efficient, will bring energy savings, and make our installation more energy independent by reducing our dependency on outside sources.

"It will provide us a sustainable source of energy and is one step of many in helping us reach our goal of sustaining critical missions," Ivey continued.

"We are exceptionally excited and looking forward to the timely construction of this facility and we are looking forward to competing for our eighth Secretary of the Army award for energy efficiency."

The co-generation design of the facility improves energy efficiency by using natural gas to power an electricity generator and to generate steam on site.

The steam is produced from the generator's waste heat, and it is utilized in an existing distribution system. Picatinny's mission processes have a year-round need for steam energy.

The project also supports the Army's directives for energy security. Picatinny's energy resiliency is improved by having the capability to generate electricity and steam for critical operations on site in the event of a loss of grid electricity.

See COGENERATION, Page 2

New Army facility expedites prototypes of experimental battlefield maintenance and equipment systems

BY ED LOPEZ

Picatinny Arsenal Public Affairs

ROCK ISLAND, Ill. -- A new system integration facility has opened at Rock Island Arsenal that will help to provide quick turnaround prototyping for the delivery of experimental battlefield maintenance systems.

The first system now being fabricated at the integration facility is the Rapid Fabrication via Additive Manufacturing on the Battlefield, or R-FAB.

The system is a high priority Army program that puts part-making in the hands of Soldiers, significantly increasing unit readiness. Additive manufacturing is also known as 3-D printing.

The integration facility is a partnership between the U.S. Army Armament Research, Development and Engineering Center, or ARDEC, and the TACOM Rock Island Arsenal-Joint Manufacturing and Technology Center, or RIA-JMTC.

ARDEC, with headquarters at Picatinny Arsenal, is part of the U.S. Army Research, Development and Engineering Command (RDECOM).

COMPLEMENTING ORGANIC BASE

The integration facility is formally named the ARDEC Battlefield Tools and Equipment Integration Facility, and was announced by ARDEC's Battlefield Tools and Equipment Division (BTED). A ribbon-cutting ceremony was held on Nov. 1.

"This partnership will enable a closer pairing of engineering development and the organic industrial base," said Vernon Vondera, Competency Manager of the ARDEC BTED.

Col. Kenneth Letcher, Commander of the RIA-JMTC, expressed support for the new facility and partnership. "We must continue to advance materiel solutions, building on our history of 155 years of metal manufacturing and continue that in the future, and that future is honestly hand-in-hand with ARDEC," he said.

Anthony Sebasto, Executive Director of the ARDEC Enterprise & Systems Integration Center, thanked Letcher for helping to establish this partnership and allowing ARDEC the work space to enhance ARDEC's engineering capability and capacity.

"This new facility enhances ARDEC's life-cycle engineering responsibility for SKOT (Sets, Kits, Outfits, and Tools) solutions like R-FAB and will help enable smooth transition of integrated prototype solutions to the industrial base," Sebasto said.

EXPEDITIONARY 3-D

At more than 3,000 square feet, the new integration facility provides an ideal location for BTED to integrate specialties from across ARDEC, such as Additive Manufacturing—an ARDEC Munitions Engineering & Technology Center expertise—into a prototype system ready for experimentation during various Army exercises.

The new integration facility supports

See INTEGRATION, Page 4

PEO Ammunition employee wins top Army security award

BY AUDRA CALLOWAY
Picatinny Arsenal Public Affairs

A Picatinny Arsenal employee has been awarded the Army's top honor for her work in foreign disclosure.

Naomi Griggs, Program Executive Office Ammunition director of security, received the 2016 Kenneth C. Raymer Memorial Award during a ceremony on Oct. 5 at Picatinny Arsenal.

The Kenneth C. Raymer Memorial Award is an annual award presented to a Foreign Disclosure Officer who best exemplifies the attributes of expertise, professionalism and devotion to duty that is essential in providing Army commands with clear, concise, responsive and accurate support. The award is open to all U.S. Army Foreign Disclosure Officers serving within an Army organization or command.

"I was speechless when notified of my selection," said Griggs.

"Receiving such an award, is an incredible honor. I feel humbled and honored by the nomination from PEO Ammunition and by the selection from the Army. I will be forever grateful for receiving the award."

"At an early age, my parents taught me to give even the simplest task 100 percent effort or more and that is what I strive to do. Simply put, I love my job, supporting the warfighter," Griggs added.

"God has blessed me with amazing mentors, superb security teammates and foreign disclosure colleagues, and most importantly, exceptional senior leaders as Mr. James Shields, PEO Ammunition, Brig. Gen. Patrick Burden, former

Naomi Griggs

"At an early age, my parents taught me to give even the simplest task 100 percent effort or more and that is what I strive to do. Simply put, I love my job, supporting the warfighter."

Deputy PEO Ammunition and Mr. Chris Grassano, Chief of Staff, were instrumental in the revamping of PEO Ammunition's Foreign Disclosure program when I on-boarded in 2014," Griggs continued.

"Ms. Griggs has demonstrated remarkable initiative and work ethic as well as outstanding leadership," Shields wrote in Griggs nomination packet. "She has been invaluable in her role as the security expert in the organization."

According to Army Regulation 380-10, foreign disclosure is the legal transfer of classified or controlled unclassified military information through approved channels to an authorized representative of a foreign government or international organization.

Griggs began her civil service career in 2007 and became the PEO Ammunition director of security in 2014.

Since Griggs joined PEO Ammunition in 2014, the amount of Foreign Military Sales (FMS) of ammunition to our allies has tripled.

This rise is partially due to Griggs' leadership, for the processes and procedures she implemented, which had the ability to expand with the increased FMS workload, according to the award nomination.

She also standardized and improved the process for staffing PEO Ammunition's more than 100 annual visits by foreign visitors.

A native of Birmingham, Alabama, Griggs earned her Bachelor of Science degree in Psychology from Bethune-Cookman University, where she was initiated as a member of Alpha Kappa Alpha Sorority, Inc.

Griggs received her Master of Science in Business Administration from Texas A&M University -Texarkana.

Griggs was also awarded the Department of the Army Achievement Medal for Civilian Service and a letter of appreciation from Lieutenant General, U.S. Army Robert P. Ashley, Deputy Chief of Staff, G-2.

CO-GENERATION PROJECT UNVEILED

continued from Page 1

Brig Gen. Alfred Abramson

"As we consider the continuation of shrinking budgets in the Army and priorities for readiness and our deployed forces, the installation management community must continue to seek innovative, timely, and creative ways to operate," said Abramson.

"Installations are the Army's platforms in readiness, providing mission and training areas, facilities, and infrastructure that prepare our Army and our warfighters for its ultimate challenges," the general said.

"They provide essential services for Soldiers, Sailors, Airmen, Marines, and Civilians, as well as Family members to live and work in a safe environment."

ENERGY EFFICIENCY LEGACY AT PICATINY

The Army is acquiring the seven energy-related projects under a modification to an existing Energy Savings Performance Contract.

In an ESPC, projects are funded with the energy savings gained from having a more efficient infrastructure.

Construction management and financing is provided by Energy Systems Group, a third-party partner.

Picatinny Arsenal will receive a $2 million incentive from the State of New Jersey's Clean Energy Program for the co-generation project.

Picatinny has achieved, over the years, seven Secretary of the Army Awards for Energy Efficiency, one Secretary of the Army Award for Water Efficiency, as well as other federal awards for energy and water efficiency.

The co-generation plant will be another component of the energy program at Picatinny which also includes solar energy and improvements to reduce energy use.

Projects to reduce electricity usage by installing more-efficient LED lighting and lighting controls are also in progress.

The Picatinny Voice

Senior Commander Picatinny Arsenal and Deputy Program Executive Officer Ammunition

Brig. Gen. Alfred F. Abramson

Chief, Picatinny Public Affairs Office ..... **Timothy L. Rider**

Editor..... **Ed Lopez**

Public Affairs Specialist ..... **Frank Misurelli**

Public Affairs Specialist ..... **Audra Calloway**

Public Affairs Specialist ..... **Eric Kowal**

Photographers……..... **Todd Mozes**

Public Affairs Office
Attn: RDAR-CPA, The Picatinny Voice,
93 Ramsey Ave., Picatinny, NJ 07806-5000
(973) 724-6366, DSN: 880-6366, e-mail: edward.c.lopez12@mail.mil

This newspaper, The Picatinny Voice, is an authorized publication for members of the Department of Defense, Department of the Army, Picatinny, N.J., and the Joint Munitions and Lethality Life Cycle Management Command, part of the Army Materiel Command. The appearance of advertising in this publication, including inserts or supplements, does not constitute endorsement by the Department of the Army or by North Jersey Community Newspapers of the products or services advertised.

The views and opinions expressed in The Picatinny Voice are not necessarily those of the Department of the Army or the Department of Defense.

Everything advertised in this publication shall be made available for purchase, use or patronage without regard to race, color, religion, gender, national origin, age, marital status, physical handicap, political affiliation or any other non-merit characteristic of the purchaser, user or patron. If a violation or rejection of this equal-opportunity policy by an advertiser is confirmed, the publisher shall refuse to print advertising from that source until the violation is corrected.

The Picatinny Voice, circulation 5,000 copies, is an unofficial publication authorized by Army Regulation 360-1, created on desktop-publishing equipment. Editorial content is prepared, edited and provided by the Picatinny Public Affairs Office. All photos are U.S. Army unless otherwise stated. The Voice is published by North Jersey Community Newspapers, a private firm in no way connected with the Department of the Army, under exclusive written contract with ARDEC.

For matters about business, advertising and subscriptions, contact the printer, North Jersey Community Newspapers, 100 Commons Way, Rockaway, N.J., 07866 at (973) 586-8195/8197.

Editor's Note

The editorial policy of The Picatinny Voice is to accept letters to the editor and commentaries. Submissions must be signed or received via e-mail through your own account to be considered for publication. **The PicatinnyVoice reserves the right to select, reject or edit letters and articles to meet space constraints, achieve clarity or for suitability considerations.**

Director of the U.S. Army Armament Research, Development and Engineering Center (ARDEC), John Hedderich, discusses technology with the Army's Director of Process Innovation and Integration, Maj. Gen. James Richardson, in front of a wall dedicated to patents held by ARDEC personnel on Oct. 26. Reporting directly to Vice Chief of Staff of the Army, Gen. James McConville, Richardson is responsible for a team leading Army acquisition reform. He also leads the Army's cross-functional teams, which are the Army's highest priority future weapons programs and a key component of the Army's new modernization strategy. Richardson's visit to Picatinny Arsenal commences a tour of research and development centers that are part of the U.S. Army Research, Development and Engineering Command.

While being handed a belt of case telescoping (CT) polymer ammunition by Project Manager Soldier Weapons Program Director for the Next Generation Squad Automatic Rifle, Sergio Aponte, Army Materiel Command Commanding General, Gen. Gustave F. Perna, listens as Aponte, along with Armament Research Development and Engineering Center Project Officer for Next Generation Squad Weapons Technology, Matt Moeller (foreground right), describe the differences between CT and conventional brass-case rounds to during his visit to Picatinny Arsenal on Oct. 12. In the background from left are: ARDEC Director, John Hedderich III, Director of the ARDEC Weapon Systems and Technology Directorate, Mark Ford, and Executive Director of the ARDEC Enterprise Systems Integration Center, Anthony Sebasto.

Installation town hall covers wide range of topics

BY ERIC KOWAL
Picatinny Arsenal Public Affairs

Picatinny Arsenal's Senior Commander, Brig. Gen. Alfred F. Abramson III, held an installation town hall Nov. 6 in the Lindner Conference Center to provide an update on some key items of interest to the Arsenal's workforce.

The event began by recognizing personnel who have gone above and beyond the call of duty.

Awards were presented to community partners for their assistance in implementing the installation's 911 emergency service number into the Morris County Dispatch Services Center.

"It is absolutely critical that we have established this partnership," Abramson said.

Runners who competed on Picatinny's Army Ten-Miler Team, members of the Picatinny Choir, Cultural Awareness Planning Committee, and several of the installation's Equal Employment Opportunity counselors were also recognized.

Natasha Owens provided information on the Senior Service College Fellowship program, a 10-month long advanced education program open that provides leadership and acquisition management training for Army Acquisition Corps members at the GS-14/15 level or equivalent. A Department of the Army centralized selection board selects individuals for this opportunity.

Employees were reminded about Joint Federal Travel Regulations, and what the government travel card can and cannot be used for, as well as the Federal Employee Health Benefits open season.

This calendar year the timeframe for employees to make changes to dental, health, and vision insurance as well as their flexible spending account is Nov. 13 through Dec. 11.

Employees should contact the Army Benefits Center-Civilian by calling 1-877-276-9287 or visiting https://www.abc.army.mil on the web.

Tim Hendrickson, Physical Security Chief, in describing the installation's gate access policies, said there is currently no "trusted traveler program."

All visitors must present valid identification and are subject to a National Criminal Information Center background check.

Hendrickson also noted that all unofficial use of unmanned aircraft systems, commonly known as drones, must receive Senior Commander approval.

Police Chief Robert Frutchey said runners, too, are subject to penalty if rules are disobeyed. If sidewalks are available, runners must use them and get off the road. A runner must cross the road if a sidewalk is available on the other side.

Peter Mielo, the installation's emergency manager, reminded employees to update information in AtHOC, the mass warning notification system used to inform personnel about critical information such as opening delays and closures due to weather.

If an alert message states that the Arsenal will open at 10 a.m., that means the main gate will open at that time. It does not mean to report to your duty location before 10 a.m.

Installation infrastructure projects and upgrades were discussed as part of the Senior Commander's Qualify of Life Improvement Initiative.

The initiative is the culmination of feedback provided from the community.

What do Picatinnyans want to see improved? Employees are encouraged to provide feedback and suggestions by emailing usarmy.pica.peo-ammo.mbx.cg@mail.mil

Chaplain Terrence Walsh announced that the Christmas Tree lighting ceremony will be held Dec. 5 at 4:30 p.m. The Christmas concert will be held at the Old Forge Chapel, Dec. 14 from noon to 1 p.m. The Picatinny Menorah lighting will be held Dec. 18 at 4 p.m.

Employees were also reminded that Voluntary Early Retirement Authority (VERA) and Voluntary Separation Incentive Payment (VSIP) are organization-driven or managed, and are not controlled by human resources.

New Jersey Army National Guard Soldiers find calling in Counter Drug Task Force

Army News Service

NEWARK, N.J. -- Seven tons of potentially dangerous drugs are off the streets thanks to the New Jersey National Guard Counter Drug Task Force and the U.S Drug Enforcement Administration.

It's all because of Operation Take Back New Jersey, Oct. 31, when 14,527 pounds of unused, unwanted, and expired medications were taken to the Essex County Resource Recovery Facility in Newark, N.J. where they were incinerated.

Since 2009, the program's goal has been to get dangerous prescription painkillers out of the household and to prevent teens from raiding medicine cabinets.

Picatinny Arsenal is a participant in the program and took back 65 pounds of medications during the most recent operation, and a total of 118 pounds since the start of the year, said Sgt. May Atkins, service support office, Picatinny Arsenal Police Department.

STATEWIDE PROGRAM

Operation Take Back New Jersey began with collection boxes at 185 locations throughout the state, mainly at police stations.

Citizens were encouraged to stop by these locations on Oct. 28 for National Prescription

Drug Take Back Day. From there, the drugs were gathered at collections points, and picked up by Soldiers from the New Jersey National Guard in tactical vehicles capable of handling heavy loads.

For Staff Sgt. Roger Galvez, a Counter Drug Task Force veteran, the call to service comes easy.

"We do this for the communities," said Galvez, who started out as a truck driver before finding his calling with the Task Force.

"It's a great feeling knowing that by helping, we're potentially taking these drugs off the streets."

After collecting the boxes and bags of drugs, the National Guard Soldiers and Drug Enforcement Administration agents transported them to be destroyed.

"Every year, since we've been doing the National Take back, the DEA and the National Guard have worked side-by-side with collection and transportation of the prescriptions," said Special Agent Timothy McMahon from the DEA.

"The National Guard is a huge help in collecting a lot of pills in a short amount of time and then getting them to the destruction point."

At the end of the day, moving almost 15,000 pounds of drugs was worth all the effort, according to Sgt. 1st Class Jennifer Sbarro.

"Drugs are too readily available," said Sbarro, a New Jersey National Guard Soldier with the Counter Drug Task Force.

"So many young people are, sad to say, dying, and it doesn't have to be that way."

The efforts of the program and other like it may have led to a 45 percent decline in the misuse of scripts among teenagers from 2011-2016 according to federal statistics.

A new system-integration facility has opened at Rock Island Arsenal that will help to provide quick turn-around prototyping for the delivery of experimental battlefield maintenance systems. Pictured from left, Wolf Petermann, Product Manager Sets, Kits, Outfits, and Tools (PdM-SKOT); Col. Kenneth Letcher, Commander, Rock Island Arsenal-Joint Manufacturing Technology Center; Anthony Sebasto, Executive Director, ARDEC Enterprise & Systems Integration Center; and Vernon Vondera, Competency Manager, ARDEC Battlefield Tools and Equipment Division.

INTEGRATION FACILITY HELPS HASTEN INNOVATION

continued from Page 1

BTED's engineering mission to design and develop sets, kits, outfits, and tools, including mobile expeditionary additive manufacturing systems, in support of our nation's warfighters.

BTED does this by performing life-cycle engineering, including coordination of requirements, design, development, integration of equipment, test and evaluation, as well as support in production, support to the field, modifications, development and preparation of technical and packaging data, and value engineering activities.

The first R-FAB system in fabrication at the integration facility is Version 2.0 for the Joint Warfighter Assessment 18, to be demonstrated in Germany in May 2018.

R-FAB is an expeditionary additive manufacturing system with the needed hardware and software to produce temporary parts and tools for Brigade Support Battalions, Sustainment Supply Activities, and other special missions using additive manufacturing technologies and processes.

The system focuses on low safety risk, high payoff parts with an emphasis on improving weapon system readiness. Some of the initial focus has been on Unmanned Aerial Systems/Unmanned Ground Vehicles repair parts, joint service parts, tools, and low volume parts.

These part files are housed in a software database that allows the soldiers to print parts from existing files. Soldiers can also reach back to the engineering community to assist with unique or custom requirements.

Previous versions of R-FAB successfully completed the Army Warfighter Assessment 17 and Pacific Pathways 17-3. The R-FAB 2.0 will incorporate lessons learned from Pacific Pathways, and an expanded parts database to further enhance readiness.

Thi s capability will transition to the field in the Metal Working Machine Shop Set (MWMSS), since a decision was recently made to include additive manufacturing in this system.

The MWMSS is managed by Product Manager Sets, Kits, Outfits, and Tools (PdM-SKOT) and is being produced at RIA-JMTC.

On hand to christen the new integration facility were representatives from ARDEC, the Rock Island Arsenal-Joint Manufacturing Technology Center (RIA-JMTC), and Product Manager SKOT.

Eleven Picatinny employees receive NDIA Firepower awards

BY FRANK MISURELLI
Picatinny Arsenal Public Affairs

The Picatinny Chapter of the National Defense Industrial Association held its 37th Annual Firepower Awards Luncheon at the Hanover Marriott on Nov. 2, with 11 awards going to Picatinny Arsenal employees.

Firepower Awards are presented annually by the chapter to persons employed by either government or industry whose contributions to the armaments community have distinguished their service to the national defense.

James Shields, Program Executive Officer for Ammunition, who will be retiring at the end of this year, received the John A. Ulrich award.

Picatinny recipients of this year's Firepower Management Awards were Kimberly McCleerey, Robert Kowalski, and Doreen Chaplin, all representing the Program Executive Office Ammunition.

Also from the Program Executive Office Ammunition were the following recipients: Johnathan Esposito, Victor Lindner Development Award, and Lawrence Franz, Antonio Barreiro, and Saleem Ghazi, who received the Wilfred Hosking Production Award.

Representing the Armament Research, Development and Engineering Center were Patricia Alameda, who received a Firepower Technology Award, and Daniel Pascua, who was awarded the Victor Lindner Development Award.

Peter Errante, representing the Project-Manager Soldier Weapons, was acknowledged with the Scientific Achievement Award.

Four individuals from the private sector also received awards from the Picatinny chapter:

-- Leo Brun received the Firepower Pioneer Award. Bun is a Program Manager at L3 Fuzing and Ordnance Systems for the M734A1 and M783 Fuze Program. For over 20 years that program has produced over four million fuzes with 100 percent accuracy.

-- Joseph Buzzett is the Director of Technology Programs of General Dynamics-Ordnance and Tactical Systems, and a patent holder for an advanced kinetic energy tank ammunition concept. He was acknowledged with a Firepower Technology Award.

-- Jason Gaines was also awarded a Firepower Management Award. Gaines is a Vice President and General Manager of St. Marks Powder, a leading manufacturer of smokeless powder.

-- Lori Nelson received the Wilfred Hosking Production Award. Nelson is the Program Manager of Precision Guidance Kit at ATK Armament System. She has been the overall lead for the low rate and full rate production of the Precision Guidance Kit Fuze.

Eleven employees of Picatinny Arsenal were honored at the 38th annual Firepower Awards Luncheon on Nov. 2 at the Hanover Marriott in Whippany. The event was presented by the Picatinny Chapter of the National Defense Industrial Association. Front row, from left, Patricia Alameda, James Shields, Doreen Chaplin, Kimberly McCleerey, Robert Kowalski, Jim Webb, and Antonio Barreiro. Webb, who is Vice President of Program Management, L3, accepted the award for Leo Brun. Back row, from left, Daniel Pascua, Lori Nelson, Jason Gaines, Joseph Buzzett, Johnathan Esposito, Lawrence Franz, Peter Errante and Saleem Ghazi. Photo by Todd Mozes.

The evolution of armament sytems: from flintlock to precision guided munitions

From the days of the cannon ball to the guided missile of today,
Picatinny has made outstanding contributions to the national defense

Editor's Note: This is the second of a two-part series that documents the historical scope of military research at Picatinny Arsenal.

BY JEFF RANU
ARDEC Historian

The Korean War offered Picatinny Arsenal its first challenge for the post Second World War era. German panzers fell prey to the bazooka rocket, but the upgraded Soviet T-34 tanks that the North Koreans were using were all but invulnerable to the bazooka.

Luckily, Picatinny continued its research and development of the bazooka rocket in the years between the wars. The larger 3.5" bazooka was already developed and a pilot plant for manufacturing it existed on the Arsenal.

General Douglas MacArthur issued an order for a better bazooka after American forces at Osan encountered difficulty in defeating the T-34 and were in danger of being dislodged.

Twenty-four hours after receiving the order, Picatinny expanded the pilot line to accommodate full rate production and began shipping out 3.5" bazooka rockets. A Picatinny Loading Branch employee placed his contact information in one of the first shipments out.

He received a reply from a platoon sergeant a few weeks later: "We received a box of 3.5-inch Rockets from you people and sure appreciate it for they make mighty nice holes in North Korean tanks."

Post-war energetics research resulted in the development of C-4 plastic explosive, by Picatinny chemist Karl Ottoson in 1950. Its ability to deliver TNT equivalent energy while remaining insensitive to impact or detonation without the detonator installed, made it a valuable asset. A putty-like consistency makes it versatile and is still in use as a demolition explosive by Explosive Ordnance Disposal units.

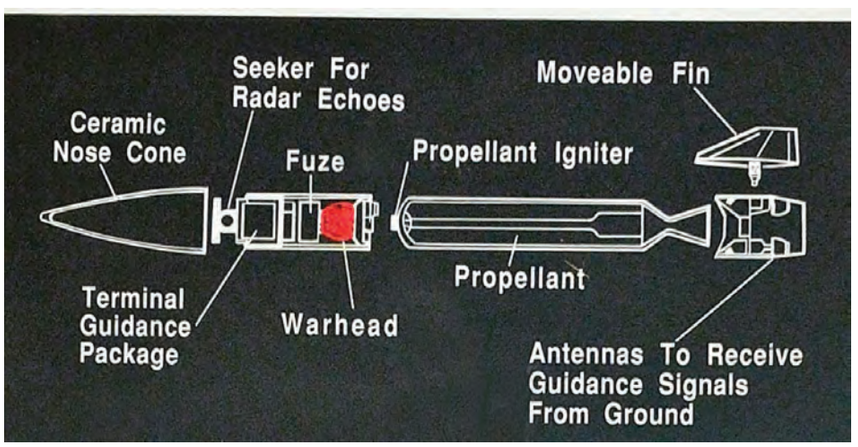
The High Explosive plant continued to investigate new methods of explosive production, while turning out 1,500 pounds of Nitroglycerin in an eight-hour shift to support propellant production." It also designed new ammunition and conducted malfunction investigations. The group managed the development of solid rocket propellant from initial design through full-rate production.

Continuing armaments research and development during peace time paid off, but the atomic age steered Picatinny into uncharted waters. The first nuclear artillery projectile was fired n May of 1953, after the efforts of Picatinny engineer Robert Schwartz made the concept practical.

He spent 15 days locked in a room, developing and refining the concept of a 280mm atomic artillery shell that could survive the gun launch environment and deliver the atomic payload over the target. Thus, "Atomic Annie" was born.

Almost immediately after, research to shrink the atomic artillery projectile to 8 inches was initiated, culminating in the M422 8-inch atomic shell. In contrast, the first Soviet nuclear artillery was not available until 1965.

For over a decade, Picatinny provided the United States with an advantage in tactical nuclear capability over its chief adversary during the Cold War. Research in nuclear artillery continued until 1973 when nuclear capability became available to the 155mm platform, via the XM785 projectile.



The Patriot Missile was instrumental during the Iraq War in countering SCUD projectiles.

Atomic and nuclear research was not limited to artillery, as Picatinny contributed to advances in rocket and missile technology as well. Picatinny fielded 110 nuclear items between 1960-1972, the majority of which were fuze components for the Hercules, Pershing, Honest John, Sergeant, Safeguard, and Lance missile systems.

Picatinny also conducted work on the Hawk and Nike missile systems, developing the XM5E3 warhead for the Hawk missile, which proved that intercepting an intercontinental ballistic missile was possible by taking down an Honest John missile during a test conducted Jan. 29, 1960.

General Douglas MacArthur, Commander in Chief, United Nations forces in Korea, issued an order for a better bazooka after American forces at Osan encountered difficulty in defeating the T-34 tanks used by North Korea. Twenty-four hours after receiving the order, Picatinny Arsenal expanded its pilot line to accommodate full rate production and began shipping out the more effective 3.5" bazooka rockets.

CHALLENGES IN VIETNAM

The Vietnam War refocused Picatinny towards conventional warfare once again. Production of munitions was once again a high priority with the escalation of hostilities in Southeast Asia. However, research and development at the Arsenal was still in motion.

The development of "beehive" rounds started in 1965. The flechette, essentially fin stabilized nails, proved to be highly effective in jungle environments because they were able to punch through dense foliage without being deflected away from the target.

Picatinny was able to transition the M40A1 recoilless rifle flechette round from prototype to the field in six months. Other rapid development and fielding initiatives included modifying 2.75 inch air-to-air rockets for ground attack use for helicopters.

Research resulted in improvements to mortar and artillery ammunition lethality and pyrotechnic illumination. It continued the tradition of shoulder-launched, antitank rockets with the development of the propulsion ignition system for the LAW antitank warhead.

Picatinny was responsible for fielding a complete family of 40mm grenades for the M79 launcher, greatly improving the firepower projection of the infantry squad. These are the same family of 40mm grenades still in use, with some improvements, with the M203 launcher slung under the M16 rifles and M4 carbines.

REORGANIZATION

At the close of the Vietnam War, Picatinny became the U.S. Army Armament Research and Development Command (ARRADCOM) in 1977, and no longer engaged in mass production. From that point forward, the focus was on research and development.

Reorganization under the Army Materiel Command transformed ARRADCOM on July 1, 1983, to become the US Army Armament Research and Development Center (ARDC). On March 19, 1986, "Engineering" was added to all AMC research centers, and ARDC became the U.S. Army Armament Research, Development, and Engineering Center (ARDEC). The acronym changed, but the mission remains the same under the ARDEC today.

The United States was not actively engaged in war again until August of 1990 in Iraq. The overwhelming overmatch of U.S. technology against the Soviet-era technology used by the Iraqi army was evident.

Research and development investments during the 1980s yielded tremendous results, now proven in battle.

Learning from Picatinny's past experience in the Nike and Hawk programs, Picatinny engineers built upon and improved the designs of the previous generation to develop

new technology.

The Patriot missile system proved instrumental in protecting both military and civilian targets from Scud missiles launched by the regime of Saddam Hussein. The Patriot Missile protection areas also included the civilian population of Israel, keeping Israel from entering the conflict, which would have been a propaganda victory for Hussein and destabilized the coalition formed to fight Iraq.

BOOSTING ABRAMS LETHALITY

Perhaps the most vivid image of the Gulf War is one of the M1A1 Abrams Main Battle Tank dominating the battlefield. This was the result of several factors, and ARDEC played a part in each.

The effectiveness of the Abrams was threefold: enhanced training methods for the tank crew, superior fire control, and overpowering lethality. The first gun on the Abrams was the 105mm gun, but was changed to the 120mm gun originated with the German Leopard Tank to standardize with NATO allies.

Abrams crews were able to engage in simulation based training with thermal imaging systems using their simulation software during peace time.

The Abrams gunner had a two-axis stabilized Primary Line of Sight, greatly improving the probability of hitting the target on the first shot.

Increasing the Abrams lethality was the capability of the gunner to fire at one target through his thermal imaging system while the tank commander could point out the next target to the Abrams fire control system concurrently via another viewer.

Gen. Norman Schwarzkopf, Commander in Chief of the U.S. Central Command during Desert Storm, singled out that Abrams thermal sight for special acclaim.

Another notable effort from Picatinny was the devastating 120mm "Silver Bullet" M829 Armor Piercing Fin Stabilized Discarding Sabot (AP-FSDS) Kinetic Energy penetrator round.

The projectile was a sub-caliber hard metal "dart" made of tungsten or depleted uranium, designed to penetrate thick tank armor via high velocity impact.

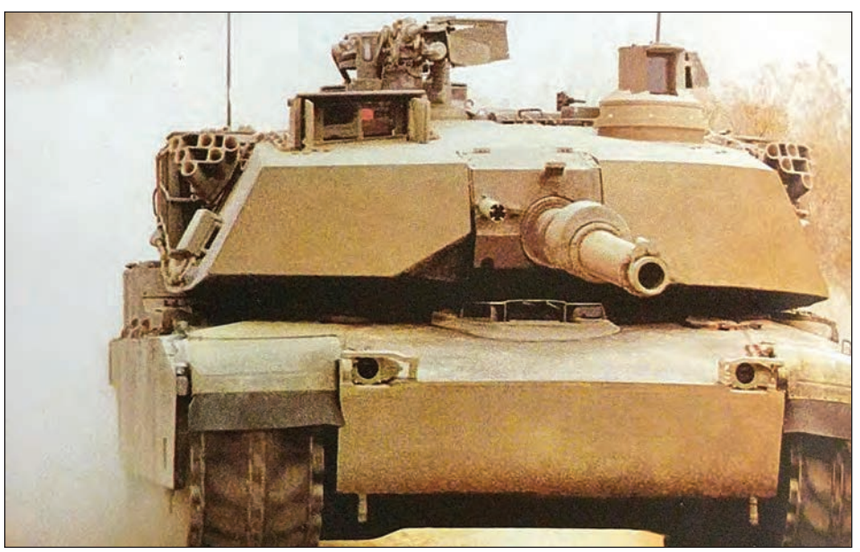
The Abrams M829 accomplished this with a thirteen pound shot from the 120mm main gun at nearly 5,000 feet per second, while the vehicle is capable of travelling nearly 70 miles per hour.

The "Silver Bullet," which was among this group of cartridges, was known for its devastating effects against Republican Guard armor during Operation Desert Storm.

The battle of 73 Easting, 26 February 1991, demonstrated the result of ensuring technological superiority over an enemy force. Eagle Troop, Second Squadron, Second Cavalry Regiment engaged the Iraqi Republican guard, and destroyed 30 tanks, 20 personnel carriers and armored vehicles, and 30 trucks.

Most of the enemy were destroyed in the opening minutes of the engagement, surprised during a sandstorm that obscured their unaided view.

We now enter the era of the M777 155mm howitzers, fielded in 2005. After the Gulf War, Picatinny continues to advance the state of the art of munitions systems.



Engineers and scientists at Picatinny Arsenal played a key role in enhancing the lethality of the M1A1 Abrams Tank, which loomed large in the battlefield during the Gulf War.

Soldiers fire precision-guided Excalibur cannon ammunition, which was developed at Picatinny Arsenal. Excalibur was the Army's first all-weather precision-guided artillery shell.

The advantage of hitting a target with an overwhelmingly lethal projectile was evident in the M1A1 Abrams.

The desire for first round hit capability has transitioned into the realm of indirect fire support, with precision guided artillery and mortar ammunition.

Operation Desert Storm saw the introduction of one of the first smart munitions, the Copperhead guided shell.

Fired by a 155mm cannon, the Copperhead was a steerable projectile that contained sensors that detect a laser beam reflected off a tank "designated" as a target by a soldier on the ground. A computer chip inside the Copperhead detects laser radiation and adjusts the steering vanes, guides the Copperhead to the target.

After Operation Desert Storm, Picatinny developed the SADARM, Sense and Destroy Armor, the U.S Army's first "smart" anti-armor weapons, one that can find and hit its targets on its own.

Fired by a 155mm cannon, the SADARM attacks armored vehicles from above where armor is relatively thin. SADARM employed a new technology developed at Picatinny called the explosively formed penetrator or EFP.

Picatinny's Excalibur 155mm Artillery projectile made an impact on both theaters of operation in the Global War on Terror.

Two, precision-guided Excalibur rounds were used to destroy a house south of Baghdad occupied by a top Al-Queda cell leader who was responsible for improvised explosive devices (IED) and vehicle-borne IED attacks.

Excalibur was the Army's first all-weather precision-guided artillery shell. Another situation presented itself where weather prevented air support from assisting troops in the urban environment of Baquba, Iraq.

The munition was able to destroy the enemy within 50 meters of US troops, while avoiding collateral damage and endangering civilians in the immediate vicinity.

Current development efforts involve extending this capability to mortar cartridges, which are lighter and more transportable than artillery.

The initial attempt at developing a guided mortar cartridge was the Precision Guided Mortar Munition (PGMM) kit fielded in March 2011 for use in Afghanistan.

The High Explosive Guided Mortar cartridge is currently in development to further improve the performance.

The benefit of research and development investment during peace is evident in the history of Picatinny, especially since World War II. Peace time investment in armaments technology leads to wartime results. Acting Secretary of the Army, Patrick J. Murphy, stated this philosophy: "We must also be ready for our future fights by investing in modernization, and research and development. We don't want our Soldiers to have a fair fight and we want them to have the technical and tactical advantage over our enemies."

ARDEC honors 25 new patent holders for final quarters of FY2017

BY FRANK MISURELLI
Picatinny Arsenal Public Affairs

The U.S. Armament Research, Development and Engineering Center honored employees for 25 patents for the third and fourth quarters for fiscal year 2017 during a ceremony on Nov. 1 hosted by John Hedderich, director of the engineering center.

Hedderich thanked the engineers and scientists who were honored.

"I'm pleased and very proud of you all," said Hedderich. "You are protecting the United States of America, and that's important."

ARDEC attained 35 patents for FY17, and has accounted for nearly 25 percent of all Army patents since 2010.

The patents and ARDEC engineers recognized during the ceremony include:

3RD QUARTER PATENT AWARDEES

Disposable, miniature internal optical ignition source for ammunition application: Gregory Burke, Stephen Redington, John Hirlinger, and Christopher Macrae.

Igniter for modular artillery charge system: Philip Abbate, Gregory C. Burke Viral Panchal, and Mohamed Elalem:

Explosive device for breaching doors and walls: Michael Hollis, Ryan Gorman, Stephen Recchia, and Gary Dundon:

Explosive detection package: Christopher D. Applegate and Joseph M. Laquidara.

Fragmentation warhead with flexible liner: Peter Rottinger and Tomasz Blyska.

Long rod penetrator concept for small caliber munitions: Marco Duca, Kip Hess, Mohan J. Palathingal, Gregory M. Kolasa, and Sung Chung.

Bead milled spray dried nano-explosives: Rajen B. Patel, Victor Stepanov, Ashok Surapaneni, and Anthony DiStasio.

Obturator for 105MM projectile: Ryan Hooke and Christopher Stout.

Motor control for externally-operated weapon: Hansen Lukman, Brian Hoffman and Alexander Smith.

First-time patent awardees receive the award shown above while subsequent winners receive a certificate.

Ammunition magazine for reciprocally-cycled weapon: Hansen Lukman, Brian Hoffman and Alexander Smith.

Large Caliber frangible projectile: Luis M.Lavrador and John F.Kostka.

Obturator for 105mm projectile Ryan Hooke and Christopher Stout.

One-pot process for preparation of ammonium and hydroxyl ammonium derivatives of bis 5,5′-tetrazole-1,1′-dihydroxid: Reddy S Damavarapu.

Vehicle gunner protection turret: Thomas J.Kiel, Kris J.Mayer and Edward S.Zuckerman.

Munitions storage container with disabling device for single-use weapon stored therein: Leon Moy, Daniel Ruland, Edward Yang and Jacek Foltynski.

Method for improved growth of two-dimensional transition metal dichalcogenides: Stephen F Bartolucci and Daniel B.Kaplan.

4TH QUARTER PATENT AWARDEES

Single-step production method for nano-sized energetics cocrystals by bead milling and products thereof: Rajen B. Patel, Reddy Damavarapu and Victor Stepanov.

40MM Extended range high performance projectile with rocket and guidance navigation control capability and decoupling device: Arthur Ricardo Pizza, Ronny Alzamora, Wilfredo Toledo and Gary Anthony Pacella.

Electric detonator with milled and unmilled DBX-1 Fragmentation warhead with flexible liner: Neha Mehta, Akash Shah, Gartung Cheng, John Marin, Kin Yee, and Karl Oyler.

Ammunition Magazine for reciprocally-cycled weapon: Hansen Lukman, Brian Hoffman and Alexander Smith:

Armor piercing incendiary projectile: Jared Moretti, Gary Chen and Jesse Sabatini (ARL).

Projectile Tail boon with self locking fin: Stephen Ginetto, Andrew Moramarco and Leanne Mohla.

Weapon blast attenuation: Robert Carson, (Benet), Eric Kathe, (Benet) and Robert Dillon (Benet).

Process for oxidation of amines in the synthesis of energetic materials: Peggy Sanchez and Kimberly Griswold.

A third quarter patent is not listed for security reasons.

Picatinny Arsenal was one of the honorees at the annual New Jersey Blood Services Chairperson and Volunteer Reception held on Sept. 14 at The Liberty House Restaurant in Jersey City. Picatinny was recognized as the Top Government Donor Group in the New Jersey region, an honor it has consistently received.

One in three people will need blood at some point in their lives. Blood lasts only 42 days. Pictured above, from left, Lt. Col. Jeffrey Ivey, Picatinny Arsenal Garrison Commander; Tammy Mitchell, Plans Specialist, Plans, Analysis and Integration Office, Picatinny Arsenal garrison; Theresa Ragozine, recently retired Vice President of Procurement at Johnson and Johnson; Janet Cella, Manager of Blood Collections

Picatinny Arsenal held a number of events on Nov. 7 to recognize the upcoming Veterans Day holiday, including a cake-decorating contest and a 2.5k cadence run/walk. Above, the Picatinny Arsenal Senior Commander, Brig. Gen. Alfred Abramson, leads runners as part of the 2.5k event.

Students apply STEM skills during 2nd Pumpkin Slinging competition

This year's winning team was from Morris Knolls High School, followed by Madison, West Orange, Livingston and Hillside High. The competition is designed to give students an opportunity to use some of their STEM skills. Their catapult designs were observed by engineers and scientists from Picatinny Arsenal. As the pumpkins were hurled into the lake, the students were able to see the instruments and methods used to measure their performance. Photos by Jesse Glass.

BY FRANK MISURELLI
Picatinny Arsenal Public Affairs

More than 100 northern New Jersey middle and high school students tested their engineering skills when they competed on Oct. 20 to determine who had designed the best catapult to launch pumpkins the farthest into Lake Picatinny.

The competition allows students to use science, technology engineering and math (STEM) knowledge in a fun and competitive way. By building catapults to fling pumpkins, participants used physics and mathematics that include linear kinematics, projectile motion, trigonometry, and engineering physics.

Participants in the 2017 competition represented Dover Middle School, Hillside High School, Madison High School, Morris Knolls High School, Morristown High School, West Orange High School and Sussex County Technical School.

This year's winning team was from Morris Knolls High School, followed by Madison, West Orange, Livingston and Hillside High.

Their catapult designs were observed by engineers and scientists from Picatinny Arsenal. As the pumpkins were hurled into the lake, the students were able to see the instruments and methods used to measure their performance.

Picatinny Arsenal employs hundreds of scientists and engineers who will need to be replaced in future years.

Picatinny Arsenal has created a STEM Education Outreach Program involving many members of its large research technical workforce. They support public and private schools, colleges and universities with no-cost assistance, professional development training, creation of new instructional equipment, and support of student robotics teams with funding.

Hispanic Heritage Month luncheon

In recognition of Hispanic Heritage Month at Picatinny Arsenal, a luncheon was held Oct. 11 at Noches de Colombia in Randolph. The more than 80 attendees were entertained by a singing performance by Juan Carlos Osorio , who provided a "Serenata" Music Recital. The event, which included a raffle, was attended by a number of senior leaders from Picatinny Arsenal.

Domestic violence prevention aims to highlight warning signs

BY FRANK MISURELLI
Picatinny Arsenal Public Affairs

Domestic violence is one of those subjects that few people really want to talk about.

Sadly, tragically, domestic violence is a cycle that tends to spread from the abusive parent to the child, and continues unchecked from generation to generation.

The only way to curb domestic violence is to report it immediately and obtain help at once, according to experts.

In recognition of October as Domestic Violence Awareness Month, a Domestic Violence Prevention Stand-Down Event on Oct. 17 at the Lindner Conference Center.

Speakers for the two hour program were Pamela Abramson, the wife of Picatinny Arsenal Senior Commander Brig. Gen. Alfred Abramson; Jean Kirch, from the Center for Hope and Safety; Patricia Lynch from Atlantic Health System; and Rod Reder from the National Institute of Crime Prevention.

Stopping domestic violence when you see it can start as simply as telling your friend that domestic violence is abnormal behavior and he or she doesn't have to take it.

This is what the stand down is all about: It's taking a stand, or, to borrow a popular phrase, "If you see something, say something." That was a recurring themes at the event: Stand up against domestic violence.

Abramson spoke about her first-hand experience counseling a married woman whose spouse openly abused her in public. The final straw came when her spouse changed the pin number of their banking accounts and left her penniless.

Abramson made the point not to let an abuser control you, either physically or emotionally.

Kirch, herself a child of an abusive father, related her experience and that domestic violence spreads from abusive parent to child unless checked.

Her presentation included what to watch for in a domestic violent relationship. Some of the behaviors she mentioned were:

Jealousy

At the start of the relationship, an abuser will equate jealously with love. The abuser will question the victim about who the victim talks to, accuse the victim of flirting, or become jealous of time spent with others. The abuser may call the victim frequently during the day, drop by unexpectedly, refuse to let the victim work, check the car mileage, or ask friends to watch the victim.

Controlling behavior

In the beginning, an abuser will rationalize controlling behavior as concern for the victim (for example, the victim's safety or decision-making skills). As this behavior progresses the situation will worsen, and the abuser may assume all control of finances, or prevent the victim from coming and going freely.

Quick involvement

A victim often has known or dated the abuser for a brief period of time before getting engaged or living together. The abuser will pressure the victim to commit to the relationship. A victim may be made to feel guilty for wanting to slow the pace or end the relationship.

Unrealistic expectations

An abuser expects the victim to meet all of the abuser's needs, to take care of everything, emotionally and domestically.

Isolation

An abuser will attempt to isolate the victim by severing the victim's ties to outside support and resources. The abuser will accuse the victim's friends and family of being "trouble makers." The abuser may also block the victim's access to use of a vehicle, work, or telephone service in the home.

Blames others for problems

An abuser will blame others for all problems, or for the abuser's own shortcomings and behavior. In their minds, someone is always out to get the abuser, or is an obstacle to the abuser's achievements. The victim or potential victim will be blamed for almost anything.

Blames others for feelings

An abuser will use feelings to manipulate the victim. Common controlling phrases include "You're hurting me by not doing what I want." "You control how I feel."

Hypersensitivity

An abusive person is easily insulted, perceiving the slightest setbacks as personal attacks.

Cruelty to children

The abuser may expect children to perform beyond their capability. For example, whipping a two-year-old for wetting a diaper, or teasing children or siblings until they cry.

Verbal abuse

This behavior involves saying things that are intended to be cruel and hurtful, cursing or degrading the victim, or putting down the victim's accomplishments.

Dr. Jekyll and Mr. Hyde

Explosive behavior and moodiness, which can shift quickly to congeniality, are typical of people who physically assault their partners.

Past battering

An abuser will beat any partner if the individual is involved with the abuser long enough for the cycle of abuse to begin. Circumstances do not make a person an abusive personality.

Threats of violence

This consists of any threat of physical force meant to control the partner. Most people do not threaten their mates, but an abuser will excuse this behavior by claiming "everyone talks like that."

Lynch, a licensed forensic nurse, spoke about the harm that occurs both physically and emotionally to both female and male victims, including young children.

Guest speakers for the Domestic Violence Prevention Stand-Down Event were, from left, Jean Kirch, Center for Hope and Safety; Patricia Lynch, Atlantic Health System; and Rod Reder, National Institute of Crime Prevention.

NEW! PREMIUM REWARDS CARD

Earn Triple Points on Gas and Groceries Until 12/31/17.

Special Card Benefits

- 0% APR* on New Purchases and Balance Transfers for 12 Months
- No Balance Transfer Fee!
- No Annual Fee or Penalty APR
- Auto Enrollment in uChoose® Rewards

Apply Online Today and Receive an Instant Decision!

Visit www.PicaCreditUnion.com For More Details.

picatinny

*federal credit union

*APR=Annual Percentage Rate. 0% APR on new purchases and balance transfers for 12 months from issuance of the card. After that, your APR for the Premium Rewards Card for purchases and balance transfers will be 12.74% -18.00% and the APR for Personal Choice Card will be 8.74%- 18.00%. The APR for cash advances will remain at 9.74%-18.00%. Your variable rate will be based on your credit worthiness. This APR will vary with the market based on Prime Rate. Triple uChoose® Rewards will be earned only on gas and groceries, not balance transfers and cash advances. For complete details about the program visit www.picacreditunion.com. Visa application must be completed by the member and approval will be based on PFCU underwriting guidelines. All offers and terms are subject to change at any time. New members must open a savings account with a minimum deposit of $5 to begin their credit union membership and take advantage of this offer.