



U.S. Department of Defense
Non-Lethal Weapons Program
Annual Review
<http://jnlwp.defense.gov>



DoD Non-Lethal Capabilities: Enhancing Readiness for Crisis Response





DOD NON-LETHAL WEAPONS PROGRAM

Thank you for your interest in the DoD Non-Lethal Weapons Program. On behalf of the Commandant of the Marine Corps (DoD Executive Agent for Non-Lethal Weapons), I chair the program's general/flag officer steering group—known as the Integrated Product Team—to guide the Department's many non-lethal weapons activities.

During my previous operational command assignments, I witnessed first-hand the many tactical challenges associated with operating near or among the local population. Based on my past experience, I'm convinced that units proficient in both lethal and non-lethal capabilities are better prepared for today's complex environments that require immediate and varying levels of force application. The utility and relevance of non-lethal capabilities in "New Normal" environments is appreciated by warfighters who require force application tools for short-of-lethal engagements, planners who understand the nexus between minimizing civilian casualties and achieving strategic goals, and policy makers who recognize that such restraint assures allies, coalition partners, and domestic audiences. This utility was clearly demonstrated in recent military utility assessments involving Marine Corps and Army units, which validated that non-lethal weapons, munitions, and devices required only nominal training to maximize their effects, extend non-lethal engagement distances between U.S. forces and suspect personnel, and reduce civilian casualties by 30%–75% in typical escalation-of-force scenarios.

In recognition of non-lethal weapons' utility, the Joint Integrated Product Team endorsed a new program vision statement that seeks ***"a fully integrated non-lethal competency within each Service to complement lethal effects, enhance the Joint Force's adaptability, and support strategic objectives that include minimizing civilian casualties."***

Commanders require a variety of options to ensure mission accomplishment, and I believe non-lethal capabilities are critical components in the suite of available options for the force. This year's Annual Review highlights the wide range of activities underway to sustain program momentum, energize acquisition processes, and deliver enhanced non-lethal capability options to the warfighter. We are very interested in your feedback and would like to hear from you. Contact information for key program personnel can be found on page 27.



Lieutenant General Ronald L. Bailey, USMC
*Deputy Commandant Plans, Policies, and Operations HQMC
Chairman, Joint Integrated Product Team*



Lieutenant General Ronald L. Bailey hosted more than 90 DoD and other government agencies at an Active Denial Technology Demonstration. Lieutenant General Bailey was the event's first volunteer to feel ADT's effects first-hand.



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"We're not always going to kill people in our sights, sometimes we just want them to stop what they're doing ... active denial weaponry is key to all of this."

—Lieutenant General Bradley A. Heithold, USAF
Commander, Air Force Special Operations Command
2015 Directed Energy Summit, Washington, D.C.



ON THE COVER—

Airmen from the Headquarters Air Force Security Forces Center and 149th Security Forces Squadron, Air National Guard, practice non-lethal confrontation management maneuvers during a mock demonstration at Joint Base San Antonio, Texas. Shown is a non-lethal grenade.

Photograph by: John Mohar/
Headquarters Air Force Security
Forces Center



The non-lethal stingball grenade is hand thrown or can be fired out of a 12-gauge launch cup for further range. When it explodes, the rubber pellets hit the target with blunt force. The stingball grenade's technology has the potential to support multiple missions to include force protection, clear rooms and crowd control.



**Non-Lethal
M7 Spider**

EMERGING NON-LETHAL CAPABILITIES

The DoD Non-Lethal Weapons Program continues to make progress in developing new non-lethal capabilities.

Since October 2013, the U.S. Army has been fielding the M7 Spider Networked Munition System to engineer units that have the capability to initiate the Non-Lethal M5 Modular Crowd Control Munition, as well as the newly developed **Spider Non-Lethal Launcher**. The Non-Lethal Launcher fires two variants of non-lethal effects (sting ball and flash bang) and adds increased escalation-of-force capability to units executing area denial missions. The Spider Non-Lethal Launcher has completed development.

M7 Spider and Non-Lethal Launcher

- Army-led program
- Hand-emplaced, “man-in-the-loop” remote controlled area denial six-tube launching unit delivers a high volume of stingball and flash-bang munitions at ranges between 0–10 meters
- Leveraged existing technology to the maximum extent possible to minimize development cost and risk

Mission Payload Module - Non-Lethal Weapons System



The U.S. Marine Corps has identified a requirement for a robust non-lethal weapons system with the range and volume of fire to suppress targeted individuals or groups. The **Mission Payload Module – Non-Lethal Weapons System** offers increased stand-off and the ability to seamlessly transition from non-lethal to lethal fires, providing a generational leap in capability over existing force-protection centric non-lethal equipment.

- The MPM-NLWS consists of an advanced, suppressive 66 mm munition, launcher, and laser sighting system with:
 - **extended range (30–500 meters)**
 - **high volume of fire and capability to transition from non-lethal to lethal engagements within seconds**
 - **shoot-on-the-move capability**
 - **vehicle, vessel, or ground-mounted/ tripod-mounted tube launcher**

- The MPM-NLWS will significantly expand and enhance non-lethal capabilities in contemporary mission areas that include area and convoy security, dismounted and mounted urban patrolling, and vehicle and pedestrian checkpoints.
- The MPM-NLWS' unique capabilities are ideally suited for missions such as stability operations, humanitarian assistance and disaster relief, embassy/consulate security augmentation, and a host of other direct operations in which Marine forces must escalate and de-escalate responses during complex and changing scenarios.
- The Marine Corps recognizes the importance of non-lethal weapons systems, such as the MPM-NLWS, which provide a highly incapacitating and reversible force-application capability—all while minimizing civilian casualties and property damage.

DEMONSTRATIONS



Non-lethal capabilities, such as the LA-9/P Dazzling Laser, are always backed up by lethal force, as shown above with Marines during a perimeter security scenario at Marine Corps Air Ground Combat Center, Twentynine Palms, Calif.

Perimeter Security Military Utility Assessment

Marine Corps Air Ground Combat Center
Twentynine Palms, Calif.

During the past two years, the DoD Non-Lethal Weapons Program has conducted various demonstrations and assessments to assess the utility and effectiveness of non-lethal capabilities. A recent assessment successfully demonstrated that integrating non-lethal capabilities into the escalation-of-force continuum during perimeter security-type missions dramatically improved mission effectiveness and clearly demonstrated military utility. The assessment was conducted by U.S. Marines at Marine Corps Air Ground Combat Center, Twentynine Palms, Calif. The Marines conducted perimeter security missions around a notional forward operating base and interacted with Afghan role players in a variety of escalation-of-force scenarios. Marines also conducted key non-lethal scenarios such as moving people, denying access to individuals and groups, and vehicle stopping.

Non-lethal capabilities used during the event included items in the Marine Corps Escalation-of-Force Mission Modules, which contain a variety of non-lethal devices, warning munitions and acoustic hailers, as

well as the Pre-emplaced Electric Vehicle Stopper and the Distributed Sound and Light Array. Escalation-of-Force Mission Modules provide commanders with an improved ability to respond to situations with varying levels of non-lethal force by way of modular capability sets that can be tailored and scaled to fit missions down to the platoon/squad level.

Fielded non-lethal capabilities contained in the Marine Corps Escalation-of-Force Mission Modules were used as a baseline capability set and then supplemented with several advanced non-lethal technologies (such as Active Denial) in an enhanced capability set.

The enhanced capability set provided additional and more effective non-lethal capabilities that can decrease civilian casualties, reduce blue force casualties in uncertain situations, extend the distances at which warfighters can assess threats by up to 1000 meters, and increase the time with which friendly forces have to make tactical decisions.

& ASSESSMENTS



A U.S. Marine is engaged by non-lethal millimeter waves from the Active Denial System 2 at the Marine Corps Air Ground Combat Center's Range 800.

The DoD's Non-Lethal Weapons Program conducts rigorous military utility assessments to assess the utility and effectiveness of non-lethal capabilities as well as operational demonstrations to showcase potential value to the warfighter.

Operational Demonstration: Active Denial System

Marine Corps Air Ground Combat Center
Twentynine Palms, Calif.

Following the Perimeter Security Military Utility Assessment, an operational demonstration of Active Denial System 2 was conducted to illustrate that the capability can be used in both a defensive and offensive mode, and provides freedom of maneuver to ground forces.

Active Denial Technology uses millimeter-waves technology to produce a non-lethal, person-sized beam of directed energy, which causes a brief but compelling heating sensation that causes the targeted individual to instinctively move away from the beam.

During the demonstration, U.S. Marines conducted a foot patrol into a simulated village. The Marines employed ADS 2 to successfully move and suppress armed gunmen and snipers who were hiding among innocent civilians.



U.S. Marines supported a non-lethal weapons Perimeter Security Assessment for the U.S. DoD Non-Lethal Weapons Program at the Marine Corps Air Ground Combat Center's Range 800. Used in the assessment, the Active Denial System 2 provided advanced non-lethal direct-fire support.

DEMONSTRATIONS

A demonstration using the Active Denial System 2, embarked aboard an Army Landing Craft Utility vessel, was conducted to demonstrate the technology's benefits in a maritime environment.



A U.S. Airman from Air Combat Command Security Forces reacts to a sudden "heat wave" produced by the Active Denial System.

ADS Maritime Operational Demonstration

Joint Base Langley-Fort Eustis, Va.

Members of the U.S. Army 7th Sustainment Brigade, 10th Transportation Battalion, and 733rd Mission Support Group partnered with the Joint Non-Lethal Weapons Directorate to demonstrate the maritime security application of the Active Denial System 2 at Joint Base Langley-Eustis, Va.

The historical demonstration was the first time the system fired from aboard a boat, performed vessel-to-vessel engagement, and deterred human targets aboard hostile moving watercraft.

The long range non-lethal effects of Active Denial Technology can be used to clearly warn personnel on small vessels that are approaching too close to U.S. naval vessels and thereby exhibiting potentially hostile or threatening behavior.



Department of Defense and Department of Homeland Security personnel, along with NATO representatives and professional staff members from the House Armed Services Committee, watch a maritime demonstration of the Active Denial System at Joint Base Langley-Eustis.

During the demonstration, ADS was embarked on an Army Landing Craft Utility vessel and engaged targets aboard mock-hostile vessels displaying aggressive actions.

In addition to its maritime applications, ADS can give ground forces added decision time and distance during foot patrols, checkpoint operations, detention operations, convoy protection, and

other stability operations. Department of Defense and Department of Homeland Security personnel, along with NATO representatives and professional staff members from the U.S. House Armed Services Committee observed the demonstration and also experienced the technology first-hand.

Fleet Experimentation

Marine Corps Base Camp Pendleton, Calif.

A fleet experimentation was conducted at Marine Corps Base Camp Pendleton, Calif. The large-scale field experiment focused on improving the teaming of unmanned systems with the manned force. It also provided a venue to demonstrate the effects of using non-lethal capabilities in a maritime environment.

For the experiment, the Mini-Distributed Sound and Light Array, a non-lethal, long-range acoustic/optical hailing device, was integrated onto a small unit riverine craft.

Mini-DSLAs use a combined laser, non-coherent light, and acoustics to hail, warn, and/or deter individuals and vehicle operators from approaching entry control points, mobile patrols/convoys, and vehicle checkpoints. Mini-DSLAs include an electro-optical camera, flood light, Maxa Beam, and electronically steered acoustic array.

During the fleet experiment, the Mini-DSLAs performed engagements against manned intruder vessels where the electro-optical camera was used to identify intruders while the flood light, Maxa Beam's strobe light, and acoustic array were used as deterrents.

This experiment was part of the U.S. Navy's Fleet Experimentation program directed by U.S. Fleet Forces Command. The FLEX program provides a holistic approach to collaborative and synchronized experimentation among government agencies, Joint and coalition partners, industry and academia.



Mini-DSLAs, a non-lethal, long-range acoustic/optical hailing device, was integrated onto a small unit riverine craft for a fleet experimentation at Marine Corps Base Camp Pendleton, Calif. (above and below)



NOLES 14 NON-LETHAL WEAPONS MUNITIONS



A service member of the Armed Forces of the Philippines fires an M500 Mossberg shotgun with a grenade cup attachment at Fort Bonifacio, Philippines during the Non-Lethal Weapons Executive Seminar field training exercise. The effective use of non-lethal weapons can be extremely valuable during rescue missions, for force protection in civil disturbances, while controlling rioting and prisoners of war, for checkpoint or convoy operations, Humanitarian Assistance and Disaster Relief operations, or in situations in which civilians are used to mask a military attack.

Information and training exchanges and exercises involving non-lethal capabilities are a fundamental part of DoD's security cooperation and building partner capacity efforts. Through these venues information is exchanged on a wide range of non-lethal capabilities along with associated tactics, techniques, and procedures. Key events conducted in the Asia Pacific region and Africa are highlighted on these pages.

Asia Pacific

U.S. Pacific Command's Non-Lethal Weapons Executive Seminar is a field training exercise and leadership seminar sponsored annually by U.S. Marine Corps Forces Pacific. NOLES is conducted in coordination with multiple partners in the Asia Pacific region. NOLES 2014 was co-hosted by the Armed Forces of the Philippines and included participation by nearly 100 senior leaders from 20 regional countries. During NOLES 2014, delegates received information briefings on non-lethal capabilities, law of war, protection of civilians, media discussion panel, witnessed demonstrations, and discussed operational concepts.

"Over the past five to seven years, the use of non-lethal weapons in the Pacific has transitioned from a novelty to a standard procedure," said Colonel C. J. Mahoney, Deputy Commander of U.S. Marine Corps Forces, Pacific. "Marines are cognizant of the wide variety of options at their disposal so they can de-escalate situations with the same confidence as when they employ lethal force."

"In the Asia-Pacific region, and around the world, we are aware of greater acceptance of non-lethal weapons, as well as a favorable desire to learn more about their capabilities, effective employment, and the legalities of proper employment. Here at Marine Corps Forces Pacific, we're proud to continue our contribution to this process," Colonel Mahoney said.

In addition to NOLES, non-lethal capabilities were included in notable Asia-Pacific region exercises including Exercise Balikatan in the Philippines and Exercise Cobra Gold in Thailand.

CAPACITY

Africa

African Lion is an annual, multilateral training exercise hosted by the Kingdom of Morocco. One of the largest of its kind on the continent, the event shows the commitment of the participating nations to military friendships, strategic partnerships and regional and global security.

African Lion 14 was held in Tifnit, Morocco, and focused on peacekeeping/peace support operations and humanitarian assistance/disaster relief. Non-lethal weapons were integrated into the stability operations phase of the event to improve the defense/security capacity of Moroccan Forces.

Military police officers from the U.S. Marines, Army, and Air Force, along with Royal Moroccan soldiers specializing in riot control, participated in the event.

The Magnetic Audio Device, X-Net vehicle arresting system, spike strips and TASER® were used to convey the relevance of non-lethal weapons in embassy reinforcement and humanitarian assistance /disaster relief.

“As demonstrated in several recent contingency operations, non-lethal weapons—ranging from audio enhancement devices and gun-fired bean bags to Taser guns and nets designed to entangle and stop vehicles—have provided tactical commanders flexibility and scalability for protecting their forces in a variety of environments, said U.S. Army Colonel Carl J. Packer, Chief, Protection Division, U.S. Africa Command.”

“Exercises, such as AFRICAN LION 14, provide both commanders and units the venue to hone non-lethal planning and employment techniques. Although lethal force is always an integral tool in the commander’s kitbag, non-lethal capabilities



A U.S. Marine explains the functions of the M-203 grenade launcher to a Moroccan soldier prior to non-lethal weapons enforcement and escalation-of-force operations training during African Lion 14 in Tifnit training area, Morocco. During the evolution, Royal Moroccan Armed Forces soldiers, and U.S. military policemen from the Marines, Army, and Air Force combined to refine and share their escalation-of-force tactics and procedures while building military partnerships and international friendships.

can provide scalable solutions to deescalate and deter aggressors. By training and exercising forces in the use of non-lethal capabilities, commanders can potentially achieve not only tactical tasks, but operational goals and set conditions for achieving national strategic goals with the minimal required force,” Colonel Packer said.



Non-lethal weapons employment and escalation-of-force operations are an integral part of military operations to prevent the loss-of-life while maintaining civil disorder.

TRAINING

Non-lethal capabilities training for service members includes both hands-on, in-person instruction, as well as the latest in online training. Efforts seek to promote awareness and effective use of non-lethal weapons as a tool to reduce civilian casualties and collateral damage.

DoD's Non-Lethal Weapons Online Course Completions Top 5,500

Completions of the DoD's "Introduction to Non-Lethal Weapons Course" at the end of fiscal year 2014 total more than 5,500 since the course was first released.

The free online course launched by the DoD Non-Lethal Weapons Program, provides U.S. operating forces with basic knowledge of non-lethal weapons' characteristics, employment, policy, and their applications in a wide variety of military operations.

The course is available by enrollment via Joint Knowledge Online, Marine Net, and the U.S. Navy's eLearning site. The course requires access via a Common Access Card for active and reserve service members and government employees.

INIWIC

Excerpts from "The Inter-Service Non-Lethal Individual Weapons Instructor Course: The best school you didn't know existed, why your Marines need it regardless of MOS, and why it is in danger" — Captain Tyler J. Anderson, *Marine Corps Gazette* (used by permission)

... The Inter-Service Non-Lethal Individual Weapons Instructor Course has been training personnel from all branches of Service, regardless of MOS [military occupational specialty] ... for over 10 years and continues to produce subject matter experts, unit advisors, and instructors for a variety of NL [non-lethal] devices and techniques. ...

... An MP [military police] knows about *oleoresin capsicum* and batons. He may also know about TASER®. A lance corporal in the artillery, faced with rioting hostile civilians, probably has no idea what options he has beyond fixing his bayonet in hope that it will deter the crowd, and his lieutenant platoon commander doesn't have a clue about the NL [non-lethal] capability sets he could have requested access to before landing in a situation that may unnecessarily escalate to deadly force. Neither does the company commander nor the operations officer who planned the mission...

... [if] each of our [400] graduates returns to the parent command and trains 100 end users, the DoD is receiving a training benefit for over 40,000 annually. The expense to run the instructor-trainer school is less than \$240,000 each year. How's that for a cost-effective force multiplier?...



MILITARY EDUCATION

NON-LETHAL CAPABILITIES CURRICULUM

Throughout the year, the DoD Non-Lethal Weapons Program, through Pennsylvania State University, provides resident Joint Professional Military Education elective classes at military academic institutions to increase non-lethal capability understanding among service members.

The course curriculum includes discussion of applications of non-lethal capabilities across the spectrum of conflict and in escalation-of-force situations. The course not only gives students a better understanding of the applicability of non-lethal capabilities in an operational environment, but also makes them aware of unique factors to be considered during operational planning. It also provides students an overview of future non-lethal capabilities currently in development.

Military institutions at which Penn State conducts these classes include: U.S. Army Command and General Staff College, U.S. Army War College, U.S. Naval War College, U.S. Air Force Air War College, National Defense University, and Joint Forces Staff College.

The Elective Course instruction includes the following:

- **Range Day:** a Joint Non-Lethal Weapons Directorate-sponsored/administered range day where students fire a variety of non-lethal weapon systems. The class provides hands-on exposure to the utility and limitations of non-lethal capabilities.
- **Non-Lethal Capability Sets:** provides current information on the make-up and means of procurement of each military service's non-lethal capability sets.
- **Globally Available Non-Lethal Capabilities:** covers non-lethal capabilities available to domestic law enforcement and those non-DoD non-lethal capabilities being developed/sold on the world market.
- **Legal Implications:** provides an overview of the legal review process that all non-lethal weapons are required to undergo to ensure they comply with our domestic and international legal obligations.
- **High Energy Technology:** covers high-energy technologies that are being investigated, developed, and fielded to support non-lethal capabilities requirements.
- **Non-Lethal Capabilities in Irregular Warfare and Complex Operations:** provides a perspective on how



Lieutenant Colonel. Dave Osterman (left), USAF, JNLWD Capabilities & Requirements Division Chief, and Major Jason Sama (fourth from right), USA, JNLWD Requirements Officer, instruct Maxwell Air College students participating in a non-lethal weapons elective course on how to fire 40 mm non-lethal munitions.

non-lethal capabilities support current operations. Students are challenged to think outside the non-lethal capabilities tactical box and discuss non-lethal capabilities utility across the spectrum of conflict and consider escalation-of-force scenarios in support of counter-insurgency operations, foreign humanitarian assistance operations, and support of non-governmental organizations.

- **Human Effects Testing and the Medical Implications of Their Use:** provides the human effects protocols that DoD undertakes during the development and fielding of non-lethal capabilities. The class also covers medical aspects of non-lethal capabilities and how they differ from other weapon systems.
- **Support to Homeland Defense and Defense Support of Civil Authorities Operations:** provides insight on how non-lethal capabilities can provide utility during military homeland defense and Defense Support of Civil Authorities operations.
- **Communications Synchronization and Political/Ethical Considerations:** covers the arguments used by opponents and supporters of non-lethal technologies to provide commanders and planners insights into the potential challenges of using non-lethal capabilities.
- **Strategy and Doctrine:** covers non-lethal capabilities that have/have not transitioned into current military strategy and doctrine.
- **Lessons Learned:** provides insight into how non-lethal capabilities have been used in past military and domestic law enforcement operations.



U.S. ARMY HIGHLIGHTS

DEVELOPING: INTEGRATING NON-LETHAL CAPABILITIES INTO DISMOUNTED SOLDIER TRAINING SYSTEM

The U.S. Army has been using the Dismounted Soldier Training System to help Soldiers hone their warfighting skills by using a virtual environment to replicate anticipated scenarios. Soldiers gear up with flip down goggle mounts, sensors strapped to their arms and legs, and a computer-enhanced weapon system.

The immersive simulator can be programmed to replicate a variety of terrains and situations making the options for training almost limitless. Efforts are underway to include non-lethal capabilities.

The Dismounted Soldier Training System is divided into separate work areas with specific purposes. The Soldier Simulated Training area is a 10-foot by 10-foot area with a manned module pad, which provides feedback for the Soldier to safely move in his or her space. The Exercise Control Workstation is the brains behind the system and allows the trainer to create, modify, and execute training exercises. This

workstation controls each person participating in the training. Virtual Soldier Multifunction Workstation allows additional virtual Soldiers, vehicles, and neutral or opposing forces to “participate” in the training, and is controlled via keyboard and mouse by an additional individual. The Semi-Automated Forces Workstation gives the trainer the option to create additional static items, like furniture and buildings, or animated items such as dogs and birds, inside the virtual world. There can also be modifications made during a scenario to create specific environments, which are tailored to replicate actions and items that the Soldiers might face in future operations.

New virtual scenarios are currently being developed to include the use of non-lethal systems and weapons. These scenarios will provide a realistic environment in which Soldiers will have non-lethal options to apply and enhance their escalation-of-force



In Development: Dismounted Soldier Training System

skills. The scenarios will include the use and effects of munitions such as the M1012 and M1013 shotgun rounds, as well as the M1006 and M1029 40 mm rounds. A replica of the TASER® X26™ is anticipated to be developed for the system, which will add the ability to simulate conducted energy weapons.

FIELDED: LA-12/P & LA-13/P GREEN LASER INTERDICTION SYSTEM

USES: ENTRY CONTROL POINTS | TACTICAL CHECK POINTS | PERIMETER SECURITY



LA-12/P

The Green Laser Interdiction System, or GLIS, provides a non-lethal capability to interdict hostile actions by projecting a safe, but intense green light at or beyond small arms ranges. The GLIS is designed to divert, disrupt, distract, or delay potential threats before they can engage friendly forces. This system also provides a dynamic and visible non-lethal effect to warn civilians who are approaching military operations. The system can be used either hand-held or mounted on any weapon with a Picatinny rail.



LA-13/P



U.S. MARINE CORPS HIGHLIGHTS

OCULAR INTERRUPTION DEVICE

The U.S. Marine Corps continues to use dazzling lasers to mitigate potential threats in a wide range of environments.

Non-lethal dazzling lasers used by the Marine Corps were approved by the U.S. Navy's Laser Safety Review Board using safety standards from the American National Standard Institute.

Two currently fielded dazzling lasers, the LA-9/P (medium range) and Glare MOUT 532P-M (short range), provide Marines non-lethal capabilities to communicate discrete, non-verbal hailing and warning signals to individuals while on patrol and convoys; and at entry control points and check-points.

Advancement in safety and effectiveness is continuous as the Marine Corps is developing the Ocular Interruption device, which will incorporate controls to reduce the risk of unintended lasing.

Using the latest technology, the Ocular Interruption device will integrate an eye-safe range finder and dazzling laser to automatically regulate energy levels below permissible exposure levels at all ranges. The device will replace currently fielded dazzling lasers for short to medium range engagements. Incorporating an adjustable beam, the device will allow the operator to vary the spot size to best match the tactical situation.

The Ocular Interruption device will be globally employed, providing an enhanced escalation-of-force option to deployed Marines.

Advancement in safety and effectiveness is continuous as the U.S. Marine Corps is developing the Ocular Interruption device.



EMERGENT TECHNOLOGY: INDIRECT FIRE MUNITION

USES: SUPPRESS AN AREA AT RANGE | DENY AN AREA | WARN INDIVIDUALS | MOVE INDIVIDUALS



The Indirect Fire Munition, or IDFM, is a non-lethal 81 mm mortar munition that integrates flash bang, counter-personnel technology with existing 81 mm mortar systems to suppress an area at range while minimizing collateral damage.

A novel pyrotechnic payload allows the IDFM to suppress or move personnel and denies access into or out of an area by delivering reversible effects on enemy

personnel who may be embedded among civilian populations.

Once separation occurs and the payloads are ejected, parachutes mitigate the hazard from falling debris by carrying the cartridge safely to the ground.

Testing has proven the IDFM is capable of delivering effects out to several kilometers, and the IDFM was recently

successfully employed during a capability demonstration at Fort Benning, Ga.

In a continuing effort to develop the IDFM, the U.S. Marine Corps, along with members of the Joint Non-Lethal Weapons Directorate; the Naval Surface Warfare Center, Dahlgren Division and Indian Head Explosive Ordnance Disposal Technology Division; the Armament Research, Development and Engineering Center; and the Human Effects Center of Excellence, hosted a technology demonstration at Aberdeen Proving Ground later in the year.



U.S. NAVY HIGHLIGHTS

INITIAL FIELDING: LONG RANGE OCULAR INTERRUPTER

USES: FORCE PROTECTION | ENTRY CONTROL POINTS | CHECKPOINTS | CONVOYS | MARITIME PORTS | SECURITY ZONES



Long-Range Ocular Interrupter

The U.S. Navy is transitioning its Long-Range Ocular Interrupter, known as LROI, to a rapid deployment capability program for initial fielding.

LROI delivers a warning effect at distances of 3000 meters and increases irradiance at ranges up to 2000 meters to provide visual suppression of the target.

After a quick reaction assessment, Naval Surface Warfare Center, Dahlgren Division will develop and produce eight units using commercial off-the-shelf components. A competitive procurement for production units will take place following the creation of a technical data package.

TECHNOLOGY INTEGRATION: HAILING, ACOUSTIC, LASER AND LIGHT TACTICAL SYSTEM (HALLTS)

USES: FORCE PROTECTION | PORT OPERATIONS | HOSTILE INTENT DETERMINATION



HALLTS large system (front and back)

Hailing, Acoustic, Laser, and Light Tactical System, known as HALLTS, is a single-operator, man-portable, hailing and warning system developed with Physical Security Equipment Action Group funding in FY12-14. HALLTS integrates an acoustic hailing device, a high-intensity white light and a dazzling green beam laser—all currently utilized by the U.S. Navy—with a common user control mechanism to enhance the ability of security forces to effectively execute escalation-of-force procedures. Scalable with three variants: small, medium, and large—for various mission scenarios.



U.S. AIR FORCE HIGHLIGHTS

DEVELOPING: NON-LETHAL ESCALATION-OF-FORCE EQUIPMENT ASSESSMENT, AND JOINT ELECTRONIC TACTICS, TECHNIQUES, AND PROCEDURES GUIDES

Airmen around the world face critical situations in which they need to make rapid decisions on the use of force. Non-lethal weapons can help them meet these operational requirements by bridging the gap between “shouting and shooting.”

Non-Lethal Escalation-of-Force Equipment Assessment

The U.S. Air Force conducted a non-lethal escalation-of-force equipment assessment at Joint Base Langley-Eustis, Va. The purpose of the assessment was to become familiar with the approved non-lethal equipment and to put together an equipment integration plan. Headquarters Air Combat Command, Security Forces, reviewed the equipment modules for inclusion into three newly formed unit codes. This will allow for better integration of escalation-of-force capabilities into current resources. Everyone involved

in the assessment agreed that this tactical-level equipment, used in tactical situations, has results with strategic implications.

Joint Electronic Tactics, Techniques, and Procedures Guides

The Air Force also continued to lead the development of Joint Electronic Tactics, Techniques, and Procedures Guides, known as e-TTPGs. Five non-lethal training modules and two videos for the U.S. Army, Air Force, and Transportation Command were developed, for a total of 30 Joint- and Air Force-specific non-lethal e-TTPG modules. Each module contains a student study guide, lesson plan, task performance checklist, and references. Eleven of the non-lethal modules contain 10–12 minute instructional videos. The modules are available via the

Internet using a Common Access Card and can support all Services with non-lethal training. Service members interested in accessing this training should contact their Central Action Officer listed on page 25.

There are six additional joint non-lethal modules and videos planned for 2014. Joint non-lethal e-TTPGs are critical investments to maintain core expertise in non-lethal capabilities and provide a library of standardized, state-of-the-art training materials.

The Joint Electronic Tactics, Techniques, and Procedures Guides instructional videos, like the one being filmed below, help provide our Service members with state-of-the-art training.



FIELDED: OLEORESIN CAPSICUM SPRAY

USES: CROWD CONTROL | DETAINEE OPERATIONS



The U.S. Air Force concluded in 2013 a multi-year initiative to find, test, and approve new non-flammable oleoresin capsicum, known as OC or pepper spray. Current OC spray proved flammable during a flammability test with TASER® devices conducted by the Air Force Operational Test and Evaluation Center. This same test also identified several commercial off-the-shelf non-flammable OC sprays as possible suitable replacements. After additional extensive military laboratory testing and review by the Non-Nuclear Munitions Safety Board, the Air Force’s Surgeon General and Judge Advocate, four vendors and their non-flammable OC sprays and canisters were certified for Air Force Security Forces use. The end result is new OC sprays that are safer, less expensive, and provide an increased capability and flexibility to commanders in situations requiring non-lethal capabilities.



U.S. COAST GUARD HIGHLIGHTS



U.S. Coast Guard and U.S. Navy members discuss maritime security postures during a table top exercise at a recent military utility assessment at Joint Base Langley-Eustis, Va. Coast Guard members are (from left) Lieutenant Mark D. Cobb, Lieutenant Commander William W. Suter, and Lieutenant Commander Walter Chubrick Jr.

Recently, the Coast Guard Research, Development, Test and Evaluation program identified and assessed four state-of-the-art non-lethal weapon systems and six different munitions. The effort focused on expanding the Coast Guard's non-lethal munitions capabilities in vessel-to-vessel, high-speed pursuit scenarios, ultimately providing units with greater flexibility when compelling compliance from non-compliant vessels.

The Coast Guard also participated in the Joint Non-Lethal Weapons Directorate's Maritime Security Military Utility Assessment conducted at Joint Base Langley-Eustis, Va. and Naval Surface Warfare Center Dahlgren, Va. The MUA examined the non-lethal weapons capabilities' operational effectiveness and suitability, as well as determined the military utility of integrating non-lethal capabilities into maritime security operations. U.S. Coast Guard Headquarters-Office of Specialized Capabilities (CG-721) provided operational forces to the assessment. Forces were trained to employ non-lethal systems against emerging waterborne threats and provided feedback on the utility of non-lethal systems.

The U.S. Coast Guard has been part of the DoD Non-Lethal Weapons Program since 2002. With missions that include ports, waterways, and coastal security; counter drug; and illegal migrant interdiction, the Coast Guard uses non-lethal weapons to augment lethal weapons, warn/stop vessels at safe "stand-off" distances, and determine intent of groups or individuals who appear to pose a threat.

FIELDLED: LA-51 WARNING DEVICE

USES: PORT, WATERWAYS AND COASTAL SECURITY | COUNTER-DRUG MISSIONS



The LA-51 signal and warning device is designed to warn boaters in a safe and effective manner if they do not comply with U.S. Coast Guard instructions. The device is fired from a 12-gauge military shotgun to produce a visible and audible signal at a range of 100 meters. The flash and noise produced by the device are more effective than a splash in the water caused by the M16 tracer round.

The Coast Guard has been using the LA-51 as a warning signal during interdiction operations and counter-drug operations. The device is also being used during security zone enforcement and the execution of the ports and waterways and coastal security mission.



U.S. SPECIAL OPERATIONS COMMAND HIGHLIGHTS

IN PRODUCTION: IMPROVED FLASH-BANG GRENADE
IN DEVELOPMENT: MULTI-BANG DIVERSIONARY GRENADE

Improved Flash-Bang Grenade:

The current U.S. Special Operations Forces single flash-bang grenade, the Bottom-Top Vent-1, provides a noise and light combination that can cause momentary distraction.

The U.S. Special Operations Command has developed an innovative and significantly improved flash-bang grenade that uses very small quantities of thermobarric materials to provide a greatly enhanced flash intensity and duration to aid special operation forces in multiple mission sets. The improved flash-bang grenade, which is in production, will also have a reduced smoke output, enabling better situational awareness in dynamic environments.



SOF Multi-Bang Diversionary Grenade:

Special Operations Forces also have a requirement for a multi-bang flash-bang grenade/diversionary grenade to supplement their current and planned inventory of single-bang flash-bang devices. This multi-bang grenade, which is in development, gives operators a prolonged diversionary/dispersal effect on targets from a single device.

Like the improved flash-bang grenade, the multi-bang grenade will provide flash incapacitation and reduced smoke output, with the additional capabilities of longer diversion and distraction induced by multiple bangs. The U.S. Special Operations Command intends to qualify an existing commercial off-the-shelf/non-developmental initiative system.



In Production: Improved Flash-Bang Grenade

Improvements:

- Hand-safe capability with metal body and top and bottom venting
- Temporary flash blindness up to 10 seconds

FIELDLED: HARBINGER II

USES: ENTRY CONTROL POINTS | CONVOYS
| VEHICLE CHECKPOINTS



Harbinger II is a 40 mm munition developed to provide dismounted U.S. Special Operations Forces a light-weight, effective, day and night, hail and warn capability, visible from small-arms to crew-served weapons ranges, without exposing Special Operations Forces units. The device is designed to be used in an encounter with a force whose identity or intentions are unknown, gain their attention, warn them their location is targeted and continuing hostile action will result in a lethal response. Harbinger II is based on a modified M585 40 mm round that has been fielded for several years. A new pyrotechnic payload replaces the previous all-white 5-star cluster with a red, white, and blue display.



NATIONAL GUARD HIGHLIGHTS



A non-lethal weapons instructor (far left) observes a Soldier as he loads a shotgun with non-lethal rounds during range training.



Charlotte, N.C.—A UH-60 Blackhawk flies over the Franklin Water Treatment Plant during a Rapid Reaction Force (RRF) exercise. The RRF exercise is an opportunity for the National Guard to highlight special skills such as non-lethal capabilities.

One of the three pillars of the Defense Department's defense strategy as highlighted in the 2014 Quadrennial Defense Review is to "Protect the homeland, to deter and defeat attacks on the United States and to support civil authorities in mitigating the effects of potential attacks and natural disaster."

Non-lethal capabilities provide force application options to protect U.S. citizens and infrastructure in the event of a catastrophic domestic incident.

Research conducted by the DoD Non-Lethal Weapons Program informs the non-lethal capabilities procured by

National Guard units conducting homeland defense operations and Defense Support of Civil Authorities. Through participation in the Joint Non-Lethal Weapons Integrated Product Team, the National Guard Bureau is aware of the latest developments in non-lethal capabilities.

The authority for National Guard members to use non-lethal capabilities during domestic operations resides with the governors, state attorneys general, or state adjutants general. State laws and standing rules for the use of force vary across the 50 states, 3 territories, and the District of Columbia.

FIELDIED: NON-LETHAL CAPABILITY SETS

USES: CONSEQUENCE MANAGEMENT



- 240 Non-Lethal Capability Sets distributed among the 50 states, 3 territories, and the District of Columbia
- 36 Non-Lethal Capability Sets stored at the Consequence Management Support Center in Winchester, Ky.
- 47 Army-configured Non-Lethal Capability Sets fielded to National Guard brigade combat teams and military police brigades
- 186 Domestic Operations Kits supplied to the 93 Air National Guard bases



CONGRESSIONAL INTEREST

In coordination with OSD and Service legislative affairs offices, the Joint Non-Lethal Weapons Directorate—as the Executive Agent’s focal point for DoD’s non-lethal weapons activities—has played an active role in responding to Congress’ need for accurate and timely information on the unique capabilities of non-lethal weapons and the ways in which they support U.S. military strategy and operational battlefield requirements.

Significant bipartisan congressional support for non-lethal capabilities has been evident in the annual defense authorization and appropriations bills passed by the Congress. For example, in its report on the Fiscal Year 2015 National Defense Authorization Act, the U.S. House Armed Services Committee reiterated its support for "the accelerated development, fielding, and deployment of non-lethal technologies," noting "that their employment is consistent with U.S. military strategy and helps minimize damage to property and inadvertent civilian casualties in the kinds of operational contingencies, including irregular

warfare and humanitarian crises, in which U.S. forces are likely to be engaged."

Where applicable, the Joint Non-Lethal Weapons Directorate supports congressional testimony preparation on non-lethal weapons by DoD officials, including the Commandant of the Marine Corps (in his capacity as Executive Agent of the DoD Non-Lethal Weapons Program), as well as helping prepare responses to congressional inquiries. In response to congressional direction, the Directorate provided inputs for a report on Active Denial Technology and supported a series of Military Utility Assessments addressing a variety of scenarios in which non-lethal weapons can play a critical role in meeting military requirements.

The Joint Non-Lethal Weapons Directorate routinely hosts congressional staff members to brief them on the latest developments in non-lethal technologies and facilitate their participation in non-lethal weapons familiarization fires.

Community and Industry Outreach



Medal of Honor recipient Corporal Kyle Carpenter gets an inside look at the state-of-the-art technologies on display at the Museum of Flight during Marine Week Seattle. Corporal Carpenter was briefed by Captain Stephenson John, JNLWD Capabilities Officer, about the Active Denial System.

The Joint Non-Lethal Weapons Directorate continues to provide awareness on the importance of non-lethal capabilities to our operating forces. Efforts include outreach to the general public as well as building rapport with industry to communicate Service technical requirements. Recent participation in general public and industry outreach events in the U.S. included:

- **Marine Week Seattle 2014.** The Commandant of the Marine Corps serves as the Executive Agent of the DoD Non-Lethal Weapons Program. Marine Week, one of the CMC's premiere community outreach events, provides the American public an opportunity to learn more about, as well as to honor and recognize, the U.S. Marine Corps and its current capabilities and technologies. Invited to participate in this year's Marine Week, held at Boeing Museum of Flight, Seattle, the Directorate staff showcased current and future non-lethal capabilities to the public, to include the Active Denial System and Solid State – Active Denial Technology. Directorate staff were also honored to host and brief Marine general officers and Medal of

Honor recipient Corporal Kyle Carpenter who visited the Program's indoor and outdoor displays. The Directorate was also supported by 1st Law Enforcement Battalion, 1st Marine Expeditionary Force who briefed the general public and senior leaders about the Marine Corps Escalation-of-Force Mission Modules during the six-day display event, which was attended by approximately 20,750 guests.

- **Fleet Week New York 2014.** Fleet Week New York is the city's time-honored celebration of the sea services. It is an unparalleled opportunity for the citizens of New York and the surrounding tri-state area to meet U.S. Sailors, Marines, and Coast Guardsmen, as well as witness firsthand the latest capabilities of today's maritime services. The Directorate staff provided both the general public and Service members information about non-lethal weapons, including a display of currently fielded non-lethal capabilities. Directorate staff also engaged with senior leaders of the U.S. military, New York City law enforcement, and the United Nations.

- **Advance Planning Brief to Industry.** The Directorate, along with U.S. Customs and Border Protection, hosted more than 70 industry representatives at the Advanced Training Center, Harpers Ferry, W. Va. The briefing enabled the government to convey current requirements and anticipated research, technology development and procurements, while giving industry representatives an opportunity to interact with staff and ask questions to better understand current and future government needs. The event also included approximately 40 vendor displays and participants from the U.S. Department of Defense, National Guard Bureau, Department of Justice and Department of Homeland Security.

Industry representatives showcase their newest non-lethal technologies to members of the DoD Non-Lethal Weapons Program, Service members and other government agencies. Colonel Michael A. Coolican, Director, Joint Non-Lethal Weapons Directorate (far right) briefs and receives feedback from industry.





NATO Systems Analysis and Studies (SAS) - 094

The Director, Joint Non-Lethal Weapons Directorate, serves as the Chairman of NATO's Systems Analysis and Studies (SAS)-094. SAS-094 is tasked with providing analytical support for the development of NATO and national Non-Lethal Weapons concepts of operations and employment. The Study Team is composed of nine NATO member nations and two partner nations. Three NATO organizations; Allied Command - Transformation, Supreme Headquarters Allied Powers Europe, and the Centre for Maritime Research and Experimentation are also represented. SAS-094 efforts include:

► **Context Analysis—**

This work involved analysis of the future security environment and security implications for NATO and its member nations, development of seven scenarios that reflect the most likely challenges, scenario analysis to identify tasks, and identification of non-lethal capabilities requirements and implications.

► **Case Studies—**

Through analysis of NATO and

national doctrine, Tactics, Techniques, and Procedures, and Lessons Learned from recent operations, SAS-094 developed case studies on: Visit, Board, Search, and Seizure; Vehicle Control Point; Entry Control Point; Establish and Secure a Perimeter; Detain Personnel; Cordon and Search; Crowd Control; Convoy Security; Urban Patrolling; Clear Facilities; Non-Combatant Evacuation Operations; Hostage Rescue/Tactical Recovery of Aircraft and Personnel; Humanitarian Assistance/Disaster Relief; and Securing Critical Infrastructure.

► **Concept Experimentation—**

SAS-094 conducted a Concept Development Assessment Game in October 2014. The output from this work will support Allied Command Transformation and national Non-Lethal Weapons concept development efforts.

NATO's Defense Against Terrorism Programme/Non-Lethal Capabilities (DAT-NLC)

NATO's Defense Against Terrorism Programme launched a new initiative on non-lethal capabilities in 2012. The United States served as the interim lead nation for planning and initiation of DAT-NLC. Lead Nation and

Chairman status has since transferred to Germany. This three year effort will assess the military utility of fielded and emerging non-lethal capabilities in a realistic tactical context. The culminating event of this effort will be a two-part NATO Non-Lethal Technology Exercise conducted in Europe during the second half of 2015.

Land Capability Group Dismounted Soldier Systems Non-Lethal Capabilities Sub Group (NLCSG)

The Sub Group is responsible for non-lethal capabilities across the full spectrum of military operations and operating environments. NLCSG's mission is to improve NATO non-lethal capabilities by information exchange on national non-lethal capabilities activities, standardization of non-lethal capabilities materiel, support to non-lethal capabilities-related doctrine development, support to operations, and identification/promotion of multilateral and bilateral cooperative activities.

Ongoing NATO counterinsurgency and stability operations in Afghanistan, peacekeeping in the Balkans, and anti-piracy off the Horn of Africa continue to drive the organization's interest in non-lethal capabilities. In response, NATO is conducting the following:

- Analytical support to non-lethal weapons concept development and experimentation, known as SAS-094
- Defense Against Terrorism initiative on non-lethal weapons capabilities, known as DAT-NLC
- Land Capability Group Dismounted Soldier Systems Non-Lethal Capabilities Sub Group



Researchers from the Tri-Service Research Laboratory (the U.S. Air Force Research Laboratory's Optical Radiation Bioeffects Branch and the U.S. Naval Medical Research Unit —San Antonio) conducted a field study to measure rifle-aiming performance while subjects were exposed to a 532 nm green dazzling laser.

Human Effects' Critical Role in Non-Lethal Systems Acquisition

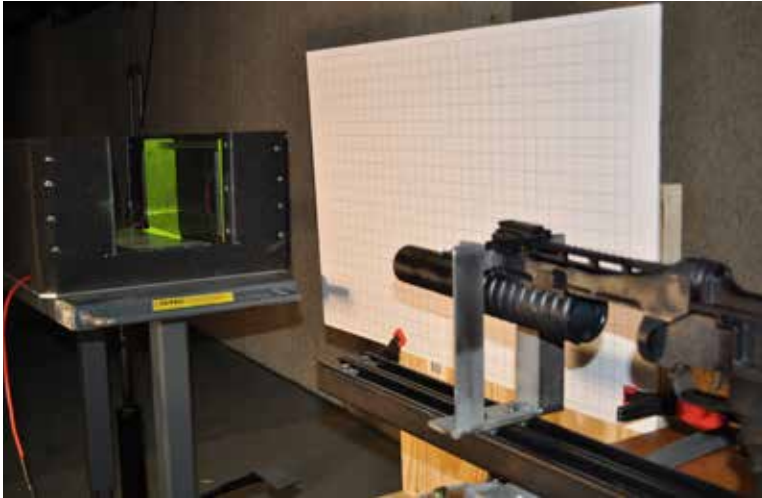
At the center of nearly every effort to develop and field non-lethal capabilities is the need for a thorough understanding of effectiveness and risk of injury. While counter-personnel capabilities have obvious needs for this type of analysis, counter-materiel capabilities often require substantial human effects analysis as well. The DoD Non-Lethal Weapons Program coordinates these much-needed research efforts using subject matter experts throughout the acquisition process—ending in a fielded non-lethal capability with well-understood injury risks.

The Department of Defense Instruction 3200.19 addresses the framework through which human effects experts support non-lethal weapons development. The instruction requires system developers to identify effectiveness

and risk of significant injury for all non-lethal weapons. As a part of this effort, the DoD Non-Lethal Weapons Program links developers and program managers with human effects experts to guide the process. In particular, the Program's sponsored Human Effects Review Board provides program managers and other key stakeholders with a peer-reviewed assessment of a capability's human effects data, potential human effects risks, and recommendations for further study. The Human Effects Review Board is an independent group of DoD medical and safety officers from each of the Services and is chaired by the Joint Non-Lethal Weapons Directorate's Human Effects Officer.

Scientific Research

The DoD Non-Lethal Weapons Program works with civilian academia to conceptualize and develop state-of-the-art, non-lethal capabilities. These institutions provide many benefits, including their ability to take a concept and elevate it to a higher technology readiness level for transition to a government laboratory.



Institute for Non-Lethal Defense Technologies at The Pennsylvania State University

The Institute for Non-Lethal Defense Technologies (INLDT), at the Applied Research Laboratory of the Pennsylvania State University, also known as ARL Penn State, has supported the Program almost since its inception, providing both on-site and campus-based technical expertise.

"The INLDT's multidisciplinary research, testing, and evaluation support the development and responsible application of non-lethal options for both military and civilian law enforcement," said Andy F. Mazzara, Director, INLDT, Penn State.

Currently, INLDT and ARL Penn State are conducting research in a number of the Program's key efforts, including Human Electro-Muscular Interruption injury mechanisms and next-generation hail and warn technology. They also continue to provide independent assessments of a wide range of Program efforts.

The University of California-Davis Millimeter Wave Research Group is helping the Program to develop new millimeter-wave sources for future active denial systems.

"Active Denial Technology, or ADT, uses radio frequency

millimeter waves at 95 gigahertz to create an intolerable heating sensation, compelling the targeted individual to instinctively move with minimal risk of injury," said Neville C. Luhmann, Jr., Ph.D., Distinguished Professor, University of California-Davis.

ADT has significant potential applications in the areas of force protection, area denial, crowd control and escalation-of-force.

Other academic institutions that recently worked with the Program to advance non-lethal technologies include:

- **Clemson University** is conducting material design and manufacturing studies in support of novel payloads to counter vessels;
- the **University of Missouri** is leveraging advances in materials to develop compact antennas and compact high-energy density capacitors for high-power microwave systems;
- the **University of San Diego** is conducting research experiments to characterize injury risk associated with multiple, repeated exposures to flash-bang systems; and
- **Penn State University** is conducting research and development in the areas of metamaterials for antennas, human electromuscular incapacitation, carbon nanotubes for acoustics, unmanned underwater vehicles, and radio frequency bioeffects.



University of California–Davis Millimeter-Wave Research Center

FOR MORE INFORMATION

Demonstration: Pre-Emplaced Electric Vehicle Stopper



Armed Forces of the Philippines service members observe a demonstration of the Pre-Emplaced Electric Vehicle Stopper as part of a non-lethal weapons demonstration and assessment during Balikatan 2014 at Crow Valley, Capas Tarlac, Republic of the Philippines. Balikatan is an annual bilateral training evolution that helps maintain a high level of interoperability and enhances military-to-military relations and combined combat capabilities.

Solicitations

The Department of Defense Non-Lethal Weapons Program appreciates organizations that are interested in furthering the development of the next generation of non-lethal capabilities.

Visit <http://jnlwp.defense.gov/BusinessOpportunities.aspx> to access U.S. government and military solicitations related to non-lethal capabilities.

U.S. government federal business and procurement opportunities related to non-lethal capabilities can be searched at:

- Defense Innovation Marketplace
<http://www.defenseinnovationmarketplace.mil>
- DoD Ordnance Technology Consortium (DOTC) National Warheads and Energetics Consortium (NVEC)
<http://www.nvec-dotc.org>
- eBuy
https://www.ebuy.gsa.gov/advantage/ebuy/start_page.do
- FEDBIZOPPS.GOV
<https://www.fbo.gov>
- Small Business Innovation Research Small Business Technology Transfer
<http://www.acq.osd.mil/osbp/sbir/index.shtml>

U.S. Unified/Combatant Commands



U.S. Africa Command Liaison Officer
011-49-711-729-8908



U.S. Pacific Command Liaison Officer
808-477-8920



U.S. Central Command Liaison Officer
813-529-3650



U.S. Southern Command Liaison Officer
305-437-1217



U.S. European Command Liaison Officer
011-49-711-680-4641 or 4637



U.S. Special Operations Command Liaison Officer 813-826-1229



U.S. Northern Command Liaison Officer
719-554-1428



U.S. Transportation Command Liaison Officer 618-220-6562



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Director, Joint Non-Lethal Weapons Directorate

Chairman, Joint Non-Lethal Weapons Program Integrated Product Team
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"Non-lethal systems are enduring capabilities that enable short-of-lethal responses across the range of military operations—evidence by continued operational demand signal."

—*Colonel Michael A. Coolican, USMC*
Director, Joint Non-Lethal Weapons Directorate

Central Action Officers



U.S. Army Central Action Officer
573-563-7092



U.S. Marine Corps Central Action Officer
703-432-8461



U.S. Navy Central Action Officer
703-692-1510



U.S. Air Force Central Action Officer
210-925-5015



U.S. Coast Guard Central Action Officer
202-372-2032



U.S. Special Operations Central Action Officer
813-826-5584

M7 Spider Networked Munition System

U.S. Army Private Jordan Danford, Company D, 31st Engineer Battalion, 1st Engineer Brigade, practices setting up a non-lethal M7 Spider Networked Munition System during Advanced Individual Training, Fort Leonard Wood, Mo. For more details on this emerging technology, see page 4.



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<http://jnlwp.defense.gov>

