



U.S. DEPARTMENT OF DEFENSE

NON-LETHAL WEAPONS

ANNUAL REVIEW



NON-LETHAL CAPABILITIES
FOR COMPLEX ENVIRONMENTS

<http://jnlwp.defense.gov>

“... these (non-lethal) capabilities truly help minimize casualties while providing escalation-of-force options ...

As we drawdown in Afghanistan and look to the conflicts of tomorrow, our use of non-lethal weapons coupled with building partner capacity missions and (military-to-military) exchanges, strategically communicates our commitment to protect innocence and reassures our strategic friends and our allies.”

*—General James F. Amos
Commandant of the Marine Corps and Executive Agent
U.S. Department of Defense (DoD) Non-Lethal Weapons Program*





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ON THE COVER AND ABOVE PHOTO — TRIDENT WARRIOR EXERCISE TESTS NEW NON-LETHAL TECHNOLOGIES

U.S. Fleet Forces Command conducted an experiment at Fort Eustis, Va., to improve non-lethal capabilities available to the fleet. The Navy used an unmanned surface vessel, Powervent, to test non-lethal hailers, lasers, and warning munitions. The Trident Warrior 2012 Spiral 1

experiment had a remote-controlled, rigid-hulled, inflatable boat perform as an aggressor intruding in protected waters during a maritime security mission. Participants used non-lethal capabilities to respond to the simulated intrusion.



U.S. DOD NON-LETHAL WEAPONS PROGRAM

The DoD Non-Lethal Weapons Program stimulates and coordinates non-lethal weapons requirements of the U.S. Armed Services and allocates resources to help meet these requirements. The Assistant Secretary of Defense for Special Operation and Low Intensity Conflict is responsible for policy oversight and the Under Secretary of Defense for Acquisition, Technology and Logistics is responsible for program oversight.

The Commandant of the U.S. Marine Corps serves as the DoD Non-Lethal Weapons Program Executive Agent, facilitating experimentation, development, transition, and fielding of non-lethal capabilities to deliver counter-personnel and counter-materiel with scalable and relatively reversible effects. The Deputy Commandant of the U.S. Marine Corps for Plans,

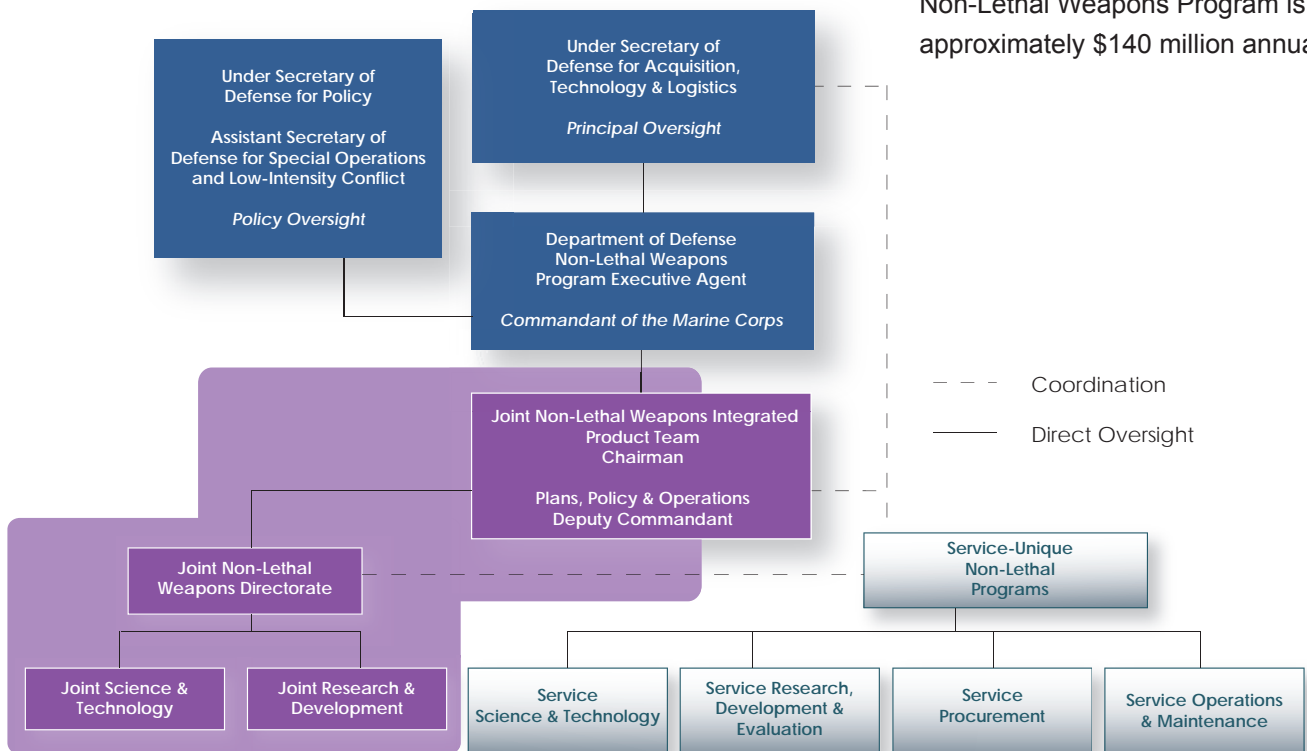


Lieutenant General Richard T. Tryon
Chairman, Joint Integrated Product Team

Policies & Operations, Lieutenant General Tryon, serves as the Joint Non-Lethal Weapons Integrated Product Team Chairman. The Integrated Product Team brings the views of the Services, Special Operations Command, and the Coast Guard to DoD non-lethal weapons efforts.

Located at Marine Corps Base Quantico, Va., the Joint Non-Lethal Weapons Directorate is the Executive Agent's day-to-day management office and serves as a focal point to coordinate non-lethal weapons program activities with the Office of the Secretary of Defense, the Joint Staff, the Services, NATO and other government agencies. The Services work with the Combatant Commanders and the Executive Agent through a joint process to identify non-lethal weapon requirements.

The DoD Non-Lethal Weapons Program budget includes joint funding executed under the direction of the Executive Agent for a wide range of program activities including non-lethal weapons research and development, as well as Service funding for non-lethal weapons procurement, operation and maintenance support. The total budget of the DoD Non-Lethal Weapons Program is approximately \$140 million annually.



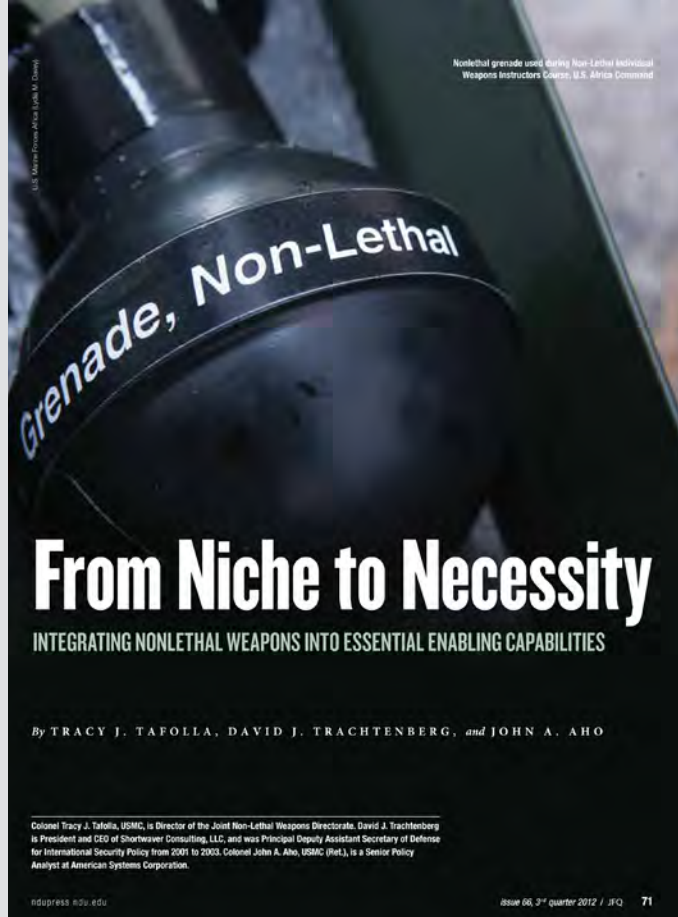
Contemporary military operations are unlike previous wars where success was measured in purely military terms. The importance of winning “hearts and minds” is now growing. Today’s wars are mostly irregular conflicts fought not against countries, but in complex environments against terrorists and extremists who wear no uniforms and operate within the civilian populace—often in a deliberate attempt to shield themselves from attack and maximize propaganda opportunities from civilian casualties.

“In both asymmetric and conventional environments, avoiding noncombatant casualties has become increasingly important to the success of military operations.”

Non-lethal weapons can play a significant and strategic role in accomplishing this and helping to achieve mission success.

The DoD definition of non-lethal weapons is “Weapons that are explicitly designed and primarily employed so as to incapacitate personnel or materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment.” The DoD policy recognizes that the use of non-lethal weapons may occasionally result in injurious or lethal effects, though that is not the intended outcome. Their use reflects an approach to warfare that seeks to reconcile the objective of defeating the enemy with the moral imperative of sparing innocent lives.

The current generation of non-lethal weapons includes counter-personnel and counter-materiel capabilities used for controlling crowds or stopping or diverting vehicles on land and vessels at sea. They provide escalation-of-force options that allow U.S. forces to determine intent of potentially hostile individuals and groups and modify behavior. More sophisticated non-lethal weapons are being developed with greater operational



The edited excerpts on this page are from the Joint Forces Quarterly Issue 66, 3rd Quarter 2012 article, “From Niche to Necessity: Integrating Nonlethal Weapons into Essential Enabling Capabilities.” Photo and graphics are reprinted with permission of JFQ.

range, scalable to a variety of needs, to provide a layered defense against potential threats.

Although applicable to a broad range of contingencies, non-lethal weapons are neither a panacea nor a substitute for lethal force. Their purpose is to complement the lethal capabilities in the warfighter’s toolkit.

Colonel Tracy J. Tafolla
Director, Joint Non-Lethal
Weapons Directorate



DIRECTED ENERGY

The Joint Non-Lethal Weapons Directorate is exploring the electromagnetic spectrum to identify new and advanced non-lethal directed energy capabilities. Low-energy dazzling lasers, such as the LA-9/P and the GLARE® MOUT 532-M, have been fielded by the U.S. Marine Corps. Both lasers provide Marines non-lethal capabilities to communicate discrete, non-verbal hailing and warning signals to individuals while on patrol, in convoys, at entry control points and at checkpoints. Advancement in safety and effectiveness is ongoing as the Marine Corps is currently developing the Ocular Interruption Device, which will incorporate controls to reduce the risk of unintended lasing by automatically regulating the exposure to the laser.

High-power microwaves are showing promise as a means to non-lethally stop vehicles and vessels—without harming the occupants. The Multi-Frequency Radio-Frequency Vehicle Stopper in concept development is designed to stop vehicles. By allowing a safe and non-lethal “keep-out zone” the Multi-Frequency Radio-Frequency Vehicle Stopper has the potential to support multiple missions including force protection, checkpoints, access control points, roadblocks and mounted patrols. The Multi-Frequency Radio-Frequency Vehicle Stopper system would allow for the maintenance of a safe and non-lethal keep-out zone with the use of high-power microwaves to disrupt vehicle engines by interacting with electrical components causing the engine to stall. Also, on the forefront is the

Radio-Frequency Vessel Stopper, which is designed to stop or disable vessels. This technology has the potential to support multiple missions including force protection, port operations and vessel pursuit/stop/interdiction.

There are also operational benefits associated with millimeter-wave technology, such as the Active Denial System, also known as ADS. The ADS is a non-lethal, long-range, counter-personnel directed-energy weapon that uses millimeter-wave energy of a specific radio frequency (95GHz) to provide a “repel” effect against human targets with minimal risk of injury. Currently, there are two Active Denial Systems: Systems 1 and 2. ADS 1, a mobile-technology prototype, has served as a satisfactory demonstrator for approximately eight years; however, the system has reached the end of its utility in its current configuration. ADS 1 is being refurbished into a new and more robust, mobile platform that will also be capable of filling potential operational deployment or demonstration requests. ADS 2 is a containerized version of the technology that is suitable for operational deployment. If an operational user request is received, a plan is in place to deploy the system, train operators, and provide operational support through a field-service representative. With its long-range (1,000 meters), precision and day/night capabilities, ADS 2 is ideally suited for a number of mission applications that includes, but is not limited to, perimeter security of forward-operating bases, air bases, and ports.





DoD SENIOR LEADERS' PERSPECTIVES ON FUTURE NON-LETHAL SYSTEMS



JOSE M. GONZALEZ

Director, Land Warfare and Munitions, Office of the Secretary of Defense
Principal Oversight to DoD Non-Lethal Weapons Program

“Like the Military Operations Other Than War requirements that helped establish the DoD Non-Lethal Weapons Program, today’s operations again find U.S. forces operating within close proximity to civilians—

this time, to locate, close with and destroy an enemy that seeks to exploit collateral damage. Appreciation for non-lethal weapons’ utility within today’s irregular warfare operations is growing, as is recognition that non-

lethals can help achieve national strategic objectives by minimizing civilian casualties and property destruction. As non-lethal capabilities continue to advance, such as with emerging directed-energy concepts, additional operational applications will ensue. Our use of non-lethal weapons when practicable, coupled with our continued use of non-lethals in building partner capacity missions and mil-to-mil exchanges, strategically communicates our commitment to protect innocents, reassures our strategic friends and allies, and helps to win ‘hearts and minds.’”



MAJOR GENERAL JOHN N.T. SHANAHAN, U.S. AIR FORCE

Deputy Director for Global Operations, Joint Staff

“The future of non-lethal weapons is brighter than ever. While a great deal of attention is on cyber right now, non-lethal weapons promise to contribute as much or more to successful operations

throughout every phase and across the entire spectrum of conflict. In an increasingly complex and chaotic world, every commander needs a healthy mix of both lethal and non-lethal capabilities—in some cases, the only viable solution to defuse a crisis is to employ a precise, non-lethal weapon that achieves the desired effects

while minimizing the potential for collateral damage. The DoD Non-Lethal Weapons Program continues to develop innovative directed-energy technologies that allow our deployed joint forces to achieve their objectives while minimizing risk to themselves and non-combatants. We are working closely with the Non-Lethal Weapons Program and the Office of the Secretary of Defense to develop and implement policies and processes that will allow faster review and approval of non-lethal capabilities. Our adversaries are not standing still when it comes to non-lethal technologies; we cannot afford to fall behind. The Non-Lethal Weapons Program must remain on the leading edge.”



ROBERT C. MARTINAGE

Deputy Under Secretary of the Navy for Plans, Policy, Oversight and Integration

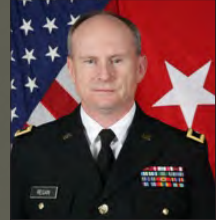
“Emerging non-lethal weapon technologies will provide our Sailors and Marines with a wider range of military response options and could significantly reduce the risk of fatalities and unintentional collateral damage.

After participating in a live demonstration, I can personally attest to the effectiveness of the millimeter wave Active Denial technology to repel personnel through its

non-damaging, momentary heating sensation. These systems could provide revolutionary capabilities on the battlefield when used in various defensive roles (e.g., checkpoints and perimeter security) or offensive roles (e.g., clearing areas before sending in friendly forces). The recently published U.S. naval directed-energy vision recognizes their importance and has directed the Navy and Marine Corps to develop high-power radio-frequency technologies to support vehicle/vessel stopping and other non-lethal applications.”

U.S. ARMY HIGHLIGHTS

Brigadier General
John S. Regan
*Joint Non-Lethal Integrated
Product Team Representative*



DEVELOPING: XM7 SPIDER NON-LETHAL LAUNCHER



In Development:
XM7 Spider
Non-Lethal Launcher

The U.S. Army's development of the XM7 Spider Non-Lethal Launcher, a counter-personnel weapon system, will provide military forces operating in all types of environments and terrain a capability that will enhance operational and tactical flexibility. The Spider's remote control unit, coupled with a transceiver and repeater, will enable the operator to send, receive, and retransmit radio signals over obstructions and longer distances to the system's grenade launcher.

This "man-in-the-loop" system will feature on/off/on capabilities, and allow the warfighter remote control firing of both lethal and non-lethal grenades from a ground-mounted tube launcher. The hand-emplaced, six-tube launcher pod will deliver a high volume of munitions, including flash-bang and sting-ball grenades, at ranges between 25–500 meters. This barrage will enable the warfighter to deny the targeted individuals freedom of movement, while preserving that freedom for friendly forces.

The system will include several additional, unique features. It will detect intrusions and be capable of self-deactivation or self-destruction. These self-protection or anti-tamper mechanisms will help maintain the system's security. Spider will also be recoverable and reusable post employment. These combined features will make Spider a versatile weapon for a variety of military missions.

Spider will be useful in denying access, moving, and/or suppressing individuals across the range of military operations. It will provide early warning, as well as delay and deter enemy forces. The capability will support force protection, including perimeter defense, area security, and crowd control. Although the Spider system will be primarily used as a protective obstacle in local and base security operations, it can offer effective capabilities for offensive and defensive operations before, during, and after hostilities.

FIELDING: X26 TASER®

USES: DETAINEE OPERATIONS | CROWD CONTROL | LAW ENFORCEMENT

"It's another tool (Taser®) in our kit to protect what matters..."

—Major Christopher W. Armstrong, 773rd Military Police Battalion



The X26 Launched Electrode Stun Device, also known as the X26 Taser®, is a hand-held device that fires tethered probes, which can temporarily disable noncompliant adversaries by delivering a neuro-muscular incapacitating effect at ranges from zero to approximately 8 meters.

Since 2008, the U.S. Army has fielded X26 Tasers® as part of their non-lethal capability sets. In June 2012, X26 Tasers® became the first, non-lethal weapons issued as required unit-specific equipment.

U.S. MARINE CORPS HIGHLIGHTS



**Brigadier General
Eric M. Smith**
*Joint Non-Lethal Integrated
Product Team Representative*

DEVELOPING: NON-LETHAL INDIRECT FIRE MUNITION

Insurgents often blend in with the local populace and use civilians to shield themselves from U.S. forces. Warfighters must be able to engage insurgents, while minimizing civilian casualties and collateral damage. Current non-lethal weapons have limited ranges and/or require line of sight to engage targets. Systems in development provide the capability to engage targets at ranges of approximately 150 meters or less, which can still put our forces at risk because of the compressed decision and response times. These capabilities lack the range, area coverage, and effectiveness required against many potential threats.

In response to the need to immediately neutralize or incapacitate insurgents at greater standoff ranges while minimizing collateral damage, the U.S. Marine Corps, in coordination with the Joint Non-Lethal Weapons Directorate, the U.S. Army, and the Human Effects Center of Excellence, is developing the Non-Lethal Indirect Fire Munition. This munition effort will produce an 81mm mortar that will provide suppressive fires with minimal risk of injury from the kinetic energy of the mortar

and its payload. The result will be a non-lethal capability that can engage area targets with indirect fires at significant ranges.

The Non-Lethal Indirect Fire Munition initiative is currently in the science and technology phase of the development cycle and is making significant progress. In addressing the major challenge of reducing the risk of injury from the projectile that delivers the non-lethal payload, the Human Effects Center of Excellence has modeled mortar payloads and designs to identify attributes that will produce the desired effect, while limiting collateral damage. A proof-of-concept demonstrated that reducing the kinetic energy of existing mortars is feasible. Next, the program will integrate a flash-bang effect into the existing M252 81mm mortar.

**In Development: Non-Lethal
Indirect Fire Munitions**



FIELDDED: LA-9/P

USES: ENTRY CONTROL POINTS | VEHICLE CHECKPOINTS | CONVOY AND/OR PERIMETER SECURITY

URBAN PATROLLING MISSIONS | SHIP-TO-SHIP ENCOUNTERS BY THE NAVY

“I have personally used it (dazzling laser) about 50 times for EOF (escalation-of-force) situations, and each time the situation was neutralized.”

**—Corporal Christopher Martinez, Military Policeman
Security Company, Marine Wing Support Squadron-373**



The LA-9/P is a medium-range, green-beam optical distracter intended to provide Marines and Sailors a safer alternative than warning shots or pen flares. The LA-9/P is capable of delivering a visual warning more than 500 meters during day, and beyond 1,000 meters at night. With a fixed-beam divergence, the LA-9/P will deliver a spot size of approximately one-half meter, and expand to approximately two meters with increased distance. With an attached safety control module, the risk of permanent eye injury has been reduced as the LA-9/P automatically shuts off the dazzling beam when a target interrupts it at a non-eye-safe distance.

DoD implemented laser safety review boards to help ensure the safety of the operators and targets of military dazzling lasers. The LA-9/P is the first dazzling laser to be fully approved by the Naval Laser Safety Review Board for non-lethal weapons use.

U.S. NAVY HIGHLIGHTS

Major General
Timothy C. Hanifen
Joint Non-Lethal Integrated
Product Team Representative



DEVELOPING: LONG RANGE OCULAR INTERRUPTER

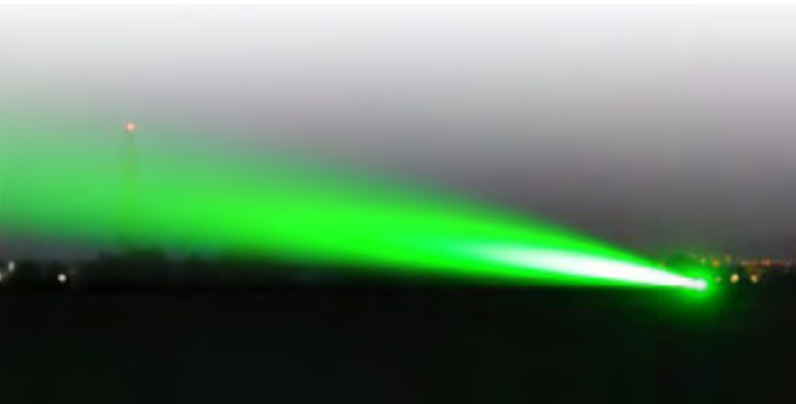
The Long Range Ocular Interrupter, or LROI, will provide a significant enhancement in capabilities beyond current shorter-range, non-lethal optical distracters. Its extended range capability will increase decision-making time in assessing the intent of a suspected target, as well as the time to determine if or how to escalate the use of force. This increased time will enable naval personnel to control potential threats sooner and minimize unintended casualties.

LROI's bright beam of human visible light will cause an intense, glare effect that can warn and/or suppress



U.S. Navy maritime expeditionary security group uses a laser distracter to warn a simulated vessel to keep its distance.

The U.S. Navy's near-term focus is to develop a man-portable LROI that expeditionary forces in severe maritime and desert environments could use. The optical distracter's effect could also be valuable for vessel protection, entry control points, checkpoints, convoys, maritime ports, and security zones. Future shipboard development may evolve as requirements are defined.



The extended-range effect of the developing Long Range Ocular Interrupter at night.

potential threats through increasing levels of visual degradation. The LROI will provide a controlled, high-intensity light beam at two levels. A lower level will serve as a visual warning, and a higher level will provide temporary, visual suppression.

The LROI will provide a controlled, high-intensity light beam at two levels.

FIELDED: ACOUSTIC HAILING DEVICE

USES: ESTABLISH INTENT OF APPROACHING VESSELS | CROWD CONTROL
UNIVERSAL WARNING | FORCE PROTECTION OF SURFACE SHIPS



In response to the terrorist attack on the USS Cole, acoustic hailing devices were developed to help determine the intent of nearby craft by providing warning messages to keep unidentified vessels and personnel out of established safety zones. Acoustic hailing devices provide high-intensity directional sound for long-range, clear-hailing, notification and unmistakable warning. Warning signals may either be input by microphone, pre-recorded messages in numerous languages from an MP3 player, or by activating an alert tone. Since 2006, the Navy has successfully used acoustic hailing devices as a non-lethal means to protect naval ships.

U.S. AIR FORCE HIGHLIGHTS



Brigadier General
Allen J. Jamerson
Joint Non-Lethal Integrated
Product Team Representative

FIELDDED: TASER X26®

To date, U.S. Air Force Security Forces have purchased more than 5,000 Tasers®, and have deployed the Taser X26® model to most of their bases. The Taser X26® is an electronic control device that uses a nitrogen-air-cartridge propulsion system to launch two probes tethered to an electrically charged cartridge. The hand-held device delivers an incapacitating pulse that can temporarily overcome the sensory and motor functions of a targeted

“The Taser® has proven to be one of security forces most successful fielding of a weapons system. Our Airmen are getting training, issued Tasers®, and using sound judgment when employing the devices. I review all the after-action reports for Taser® employment, and our folks are very confident of the Taser’s® capabilities, and their skills due to our training program.”

—Sal Hernandez
U.S. Air Force Chief,
Non-Lethal Weapons

individual’s nervous system.

Throughout the past three years, the U.S. Air Force has employed the Taser X26® more than 15 times, all with positive results. During these incidences, the Taser X26® was credited with saving the lives of two individuals who were threatening suicide.

Headquarters Air Force Security Forces Center reviews all after-action reports from Taser® employments to capture lessons learned. The Taser X26’s® high success rate is making it the non-lethal weapon of choice for

U.S. Air Force Security Forces in a police services role.

The U.S. Air Force’s Taser® training program follows the guidelines provided by TASER International, Inc. Lesson plans, study guides, volunteer exposure guidelines, and Taser® back-up responder duties and expectations are included in the Air Force’s, electronic Tactics, Techniques and Procedure guides.



X26 Taser®



FIELDDED: OLEORESIN CAPSICUM SPRAY

USES: DETAINEE OPERATIONS | CROWD CONTROL



Oleoresin capsicum spray, known as OC or pepper spray, is a non-lethal aerosol spray made from peppers. It can incapacitate targeted individuals by irritating the eyes causing tears and visual impairment.

The need for OC spray is based on U.S. Air Force Security Forces requirements to protect resources and facilities, and to maintain stability in detention facilities. OC spray provides a force option to minimize fatalities, permanent injury, and undesired collateral damage to property and environment.

A Taser® flammability test was conducted by the Air Force Operational Test and Evaluation Center, to identify non-flammable OC sprays. The Air Force Research Laboratory and the Army’s Edgewood Chemical Biological Center completed the characterization and health assessments of the physical and chemical properties. The joint testing efforts covered three variations of canisters (1-oz, 4-oz, and 46-oz) and has been approved by the Non-Nuclear Munitions Safety Board and Air Force Surgeon General. The U.S. Air Force anticipates final approval by end of 2012.

U.S. COAST GUARD HIGHLIGHTS

Rear Admiral Mark E. Butt
Joint Non-Lethal Integrated
Product Team Representative



DEVELOPING: LA-51 WARNING DEVICE

The U.S. Coast Guard's Service-wide approval of the LA-51 warning device in February 2012 has provided its operators with an enhanced capability to hail, warn, and determine intent in heavily populated and controlled U.S. ports. The Coast Guard is responsible for enforcing established security zones along the coastline and navigable waterways. When boaters get too close or illegally enter a zone, the Coast Guard will intercept the boat to determine its intent, and direct it to leave the area. The LA-51 is used to get a boater's attention if they are not obeying Coast Guard instructions to stop.

The LA-51 is considered an alternative to the current inventory of warning methods Coast Guard personnel use. The device



USCGC SENECA (WMEC-906) participates in Operation New Frontier, the Coast Guard's operation to employ armed helicopters and non-lethal use of force technology to stop drug-laden go-fast vessels.

has a short range, and its flash and noise are more prominent and safer than a splash in the water caused by an M-16 tracer round. The LA-51 is a plastic and aluminum projectile fired from a 12-gauge shotgun. It flies for approximately 100 meters, and ignites in mid-air, producing a bright flash and loud noise similar to that of a medium-sized firework. This warning device is not designed to strike or injure boaters or their vessels. It has little to no impact on the environment—an essential requirement for Coast Guard employment in U.S. waters. The LA-51 has proved effective in its operational uses. The device gives

both operational commanders and operators the confidence to employ the non-lethal capability when they need it during operations.

The Coast Guard plans to build on the device's success through its public outreach program, which incorporates the LA-51 into a larger, waterborne, security-zone awareness program. Along with increased public awareness, the LA-51 greatly enhances the Coast Guard's ability to conduct port, waterways and coastal security as well as counter-drug missions.

FIELDIED: SMALL NAVAL ARRESTING ROPE ENTANGLER

USES: VESSEL PURSUIT MISSIONS



The Small Naval Arresting Rope Entangler, also known as SNARE, is a handheld, pneumatic launcher that propels a specially configured net in front of a vessel to entangle its propeller. The Coast Guard has been involved with SNARE's development since 2009, and has continued to test its effectiveness through extensive evaluations.

U.S. SPECIAL OPERATIONS COMMAND HIGHLIGHTS



EVALUATING: TACTICAL NETWORK TESTBED

U.S. Special Operations Command conducted its third-quarterly Tactical Network Testbed this past May in cooperation with the Naval Postgraduate School at Camp Roberts, Calif. The theme for the testbed was weapons and munitions, and included experiments with multiple non-lethal weapons, munitions, and devices.

Testbed experiments are conducted with representatives from government research and development organizations, academia, and private industry. The experiments enable technology developers to interact with Special Operations Forces personnel to determine how their technology developments and ideas may support or enhance the command's capability needs, as well as potentially accelerate the delivery of needed technologies.

The Tactical Network Testbed included mission-based and capability-based experimentation events. Mission-based experimentation provides solutions to identified high-priority Special Operations Forces' mission needs. Capability-based experimentation provides technology developers an opportunity to identify potential technology solutions, impacts, limitations, and utility to meet the

Special Operations Forces' technical objectives. Both types of experimentation involve evaluating selected technologies in expeditionary-like conditions. Technology developers conducted 51 experiments, nine of which were non-lethal weapons-related, during the ten-day testbed.




Special Operations warfighter tests non-lethal 40mm munition during the Tactical Network Testbed.



The "Non-Lethal Weapons" article is featured in the September 25, 2012 edition of the *Special Operations Technology* magazine.

SPECIAL SECTION



Non-Lethal Weapons
In an age where the U.S. military strives to avoid collateral damage and civilian casualties, non-lethal weapons permit special operators to take out the enemy even when innocent civilians are nearby. And a live, captured enemy can yield valuable intelligence.
By Marc Selinger

The featured article focuses on the DoD Non-Lethal Weapons Program, and its engagement with industry. Reprinted with permission by Special Operations Technology magazine.

DEMONSTRATIONS & ASSESSMENTS

Active Denial System

Marine Corps Base Quantico, Va.
March 2012

This year, General James F. Amos, Commandant of the U.S. Marine Corps, invited senior members of the Marine Corps, other Services and the news media to Marine Corps Base Quantico, Va., for a demonstration of the DoD Non-Lethal Weapons Program's Active Denial System.

The Active Denial System, known as ADS, is a non-lethal, counter-personnel technology that projects a long-range, man-sized beam of millimeter waves to produce a reversible heating sensation to the skin. The system's 95-gigahertz, millimeter-wave beam deters or repels individuals at a range of up to approximately 1,000 meters.


The demonstration provided attendees the opportunity to witness the effectiveness of the system in dispersing an unruly crowd during a staged angry mob scenario. Volunteers were also given the first-hand opportunity to experience the effects of the state-of-the-art technology.

Vehicle Stopping

Naval Surface Warfare Center Dahlgren, Va.
November 2011 & November 2012

Based on U.S. Marine Corps and Air Force interest, demonstrations of current and developing vehicle-stopping capabilities were held at the Naval Surface Warfare Center Dahlgren Division to solicit feedback, and facilitate a decision on a lead Service request for the Pre-emplaced Electric Vehicle Stopper. Representatives from Marine Expeditionary Forces and other interested parties witnessed the effectiveness of the Pre-emplaced Electric Vehicle Stopper, Radio-Frequency Vessel Stopper, Distributed Sound and Light Array, M2 Vehicle Lightweight Arresting Device, spike strips, and LA-9/P during the demonstrations. They also viewed a display of caltrops and the Vehicle Lightweight Arresting Device Single Net Solution with Remote Deployment Device.

As a result of these demonstrations, the Pre-emplaced Electric Vehicle Stopper and the Radio-Frequency Vehicle Stopper will be included in new Marine Corps analysis of alternatives to evaluate the initiative's potential technologies.



Sergeant Major of the Marine Corps Micheal P. Barrett reacts to the momentary heat from the Active Denial System.



Soldiers employ a series of non-lethal devices, including warning munitions and optical distracters, at a traffic control point.

Vehicle Checkpoint Military Utility Assessment

U.S. Army's Maneuver Battle Laboratory Fort Benning, Ga.
April 2012

The DoD's Non-Lethal Weapons Program, supported by the Marine Corps Forces Pacific Experimentation Center, conducted a Military Utility Assessment at the U.S. Army's Maneuver Battle Laboratory at Fort Benning, Ga. This assessment was the first in a two-year long assessment program conducted at the direction of Congress to assess

the utility and effectiveness of non-lethal weapons in a counter-insurgency environment.

Supported by the U.S. Army's Maneuver Center of Excellence and Soldiers from Fort Stewart, Ga., this evaluation used a scenario in which infantry Soldiers set up a hasty traffic control point and then stopped random vehicles as they approached. This was first done without the benefit of non-lethal systems and then conducted with them. The non-lethal capabilities employed included: LA-9/P optical distracter, Magnetic Acoustic Device, M2 Vehicle Lightweight Arresting Device, and Joint Non-Lethal Warning Munitions. The assessment found that integrating non-lethal weapons in the escalation-of-force continuum when conducting vehicle checkpoints dramatically improved mission effectiveness, including reducing the likelihood of civilian wounding and killings. Vehicles were also more likely to stop before lethal force was used and less likely to be damaged.

Foot Patrol Military Utility Assessment

Bellows Air Force Station, Hawaii
August 2012

Members of the 3rd Marine Regiment participated in an evaluation by the DoD Non-Lethal Weapons Program supported by the Marine Corps Forces Pacific Experimentation Center. This event was the second of two congressionally directed assessments conducted to help determine the utility and effectiveness of non-lethal weapons within a counterinsurgency environment. This assessment utilized an urban foot patrol scenario to measure and receive feedback on non-lethal capabilities.

Conducted at Marine Corps Training Area, Bellows Air Force Station, Hawaii, the event included classroom

training, live fire, practical application exercises, and simulated scenarios. The evaluation demonstrated the usefulness of non-lethal weapons in protecting civilian populations, while maximizing U.S. force protection. Non-lethal weapons, devices and munitions used during the assessment included: GLARE® MOUT, FN-303® launcher, 40mm flash bang, 40mm foam baton, Modular Crowd Control Munition, X26 Taser®, SQ.200 Translation System, pepper spray, spike strips, and sting-ball grenades.

Enhancing the Marine's ability to conduct their assigned mission with the addition of selected non-lethal capabilities was demonstrated throughout the assessment. Of note was the measured reduction of civilian casualties by 33 percent, an increased standoff distance, and the advantage of eight additional levels or options of force escalation.



A role-player (right) throws simulated rocks at U.S. Marine Lance Corporal Tony Martin (left), during non-lethal weapons training in a simulated urban village.

INIWIC



Inter-Service Non-lethal Individual Weapons Instructor Course

The Inter-service Non-lethal Individual Weapons Instructor Course, known as INIWIC, is the only DoD non-lethal weapons instructor course available to certify military personnel as non-lethal weapons instructors.

For more than 10 years, the rigorous, 10-day training program has prepared military personnel from Service branches, as well as allied nations, to become subject matter experts on non-lethal employment.

The in-depth training is conducted both at the training facilities at Fort

Leonard Wood, Mo., and by mobile training teams. Course content focuses on introducing the future instructors to non-lethal weapon systems and equipment. Training consists of tactics, techniques, and procedures for the employment of the X26 Taser®, oleoresin capsicum spray (also known as pepper spray), acoustic hailing and ocular devices, expandable batons, and non-lethal munitions. Topics also include force continuum, riot control formations and techniques, crowd dynamics and control, open-hand control techniques, and communication skills.

Completion of the training enables the newly certified instructors to become subject matter experts for their parent commands, training other unit personnel on the employment of non-lethal capabilities in a diverse

range of challenging missions. Such missions include counterpiracy, counterinsurgency, stability, security transition, peacekeeping, humanitarian, and reconstruction operations. The skills attained from the practical experience and thorough instruction at the INIWIC has a force multiplier effect that is applicable to all operating forces. Despite INIWIC's success, U.S. combatant commands have sought to further expand the availability of non-lethal weapons training, though progress has been slow.

The demand for U.S. forces trained and equipped with non-lethal weapons continues to increase. Venues for non-lethal weapons training, in addition to INIWIC, continues to be explored.



ONLINE COURSE

Introduction to Non-Lethal Weapons

This year, the Joint Non-Lethal Weapons Directorate launched a new non-lethal weapons online course. The Introduction to Non-Lethal Weapons Course 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 approximately four-hour course consists of nine modules and concludes with an exam. The modules' content includes history; strategic impacts; tactical employment; escalation of force; counter-personnel and counter-materiel capabilities; fielded and future non-lethal weapons, munitions and devices; characteristics

and usage; and operational vignettes. Available on Joint Knowledge Online, the U.S. Navy's eLearning site and the U.S. Marine Corps' Marine. Net, the course provides worldwide access to instruction. The course requires access via a Common Access Card for active and reserve U.S. Navy, U.S. Marine Corps, and U.S. Coast Guard personnel, as well as Department of the Navy civilians and contractors. U.S. Army and U.S. Air Force personnel can also access the website; however, they must request a Navy eLearning account or a site sponsor. The DoD Non-Lethal Weapons Program is in the process of locating the course on all the Services' Learning Management Systems.

JOINT NON-LETHAL WEAPONS DIRECTORATE-SPONSORED ELECTIVES

The course, titled Non-Lethal Weapons: Support to Irregular Warfare, Complex and Defense Support Civilian Authorities, is taught by The Pennsylvania State University.

- ★ **U.S. Army War College**
Carlisle, Pa.
- ★ **U.S. Army Command and General Staff College**
Fort Leavenworth, Kan.
- ★ **U.S. Marine Corps Command and Staff College**
Marine Corps Base Quantico, Va.
- ★ **U.S. Naval War College**
Newport, R.I.
- ★ **Air War College**
Maxwell Air Force Base, Ala.
- ★ **National Defense University's The Dwight D. Eisenhower School for National Security and Resource**
Fort Leslie J. McNair, Washington, D.C.

UNIFIED COMMANDS



U.S. AFRICA COMMAND

U.S. Marine Corps Forces Africa conducted joint exercise Western Accord 12, in Thies, Senegal, in July 2012. This exercise was a multi-week, multi-lateral training event conducted with the Economic Community of West African States to increase understanding and interoperability, prevent conflict by enabling Africans to provide for their own stability and security, support U.S. national security priorities, and strengthen partner nation relationships.

2012 was the first year non-lethal weapons training was part of exercise Western Accord. Multi-national, infantry battalions preparing for deployments trained on tactics, techniques, and procedures to employ non-lethal capabilities in support of peacekeeping operations and disaster response scenarios.



U.S. TRANSPORTATION COMMAND

Exercise Point Defender, a U.S. Army Surface Distribution and Deployment Command, anti-terrorism exercise was held at Military Ocean Terminal, Sunny Point, N.C., included non-lethal weapons for the first time this year. The Distributed Sound and Light Array, also known as DSLA, was the primary non-lethal system in four different scenarios used during the exercise. Scenarios included using audio to hail and warn trespassers, locating and engaging individuals eluding police, stopping vehicles approaching the gate, and providing optical distraction against targets hiding inside a building. In addition, base personnel witnessed a DSLA demonstration. Other events included FN-303® Launcher and PepperBall® gun familiarizations, and training for the Special Response Team.



U.S. CENTRAL COMMAND

Recent escalation-of-force incidents have highlighted the need for greater U.S. Central Command and supporting Services pre-deployment training. Based on lessons learned, the command is working in partnership with the Joint Chiefs of Staff Directorate for Joint Force Development to assess the Services' training center capabilities for non-lethal weapons. Specifically, they are assessing how each Service conducts their non-lethal weapons escalation-of-force capability training. They anticipate the assessment results will increase the proficient employment of non-lethal capabilities, significantly reducing civilian casualties.



U.S. PACIFIC COMMAND

Cobra Gold, the U.S.'s largest, multilateral exercise in the Asia-Pacific region, included approximately 13,000 Service members from seven participating countries along with military personnel from another 20 countries. This year's annual training included a computer-simulated, command-post exercise, field-training operations, as well as humanitarian and civic-assistance projects.

Non-lethal weapons familiarization live-fire events enhanced the field training. Cobra Gold 12 was the first time any non-lethal weapons were fired during the non-combatant evacuation operations training. Another familiarization fire was conducted with U.S. Army and Thai Army units conducting crowd-control training. These experiences helped participants see how non-lethal capabilities can help control crowds, especially those that may occur in an emergency evacuation.



U.S. NORTHERN COMMAND

Within its missions of homeland defense, civil support, and security cooperation, U.S. Northern Command recognizes the strategic and operational value of non-lethal weapons in avoiding civilian casualties. In support of these objectives, the command held its first-ever, non-lethal weapon training exercise with federal and state interagency partners, and DoD component members. Participants in this one-day event exchanged ideas and gained insights into non-lethal weapons concepts for operators and planners. This interactive participation resulted in lessons-learned documentation that will be applied to U.S. Northern Command strategic planning objectives.



General Carter F. Ham, Commander of U.S. Africa Command, watches a riot-control demonstration during his visit to Western Accord 12.



U.S. EUROPEAN COMMAND

U.S. European Command, along with a team of experts from the DoD Non-Lethal Weapons Program and NATO Allied Command Transformation, developed tactics, techniques, and procedures, or TTP, to address obstacle clearing with non-lethal weapons. The focus of these TTP was to maximize effect by the combined use of currently fielded non-lethal capabilities. The TTP were first exercised using DoD warfare simulation models. Next, they were tested during a field experiment with Soldiers from the Joint Multinational Readiness Center in Hohenfels, Germany. These activities enabled the Command to incorporate feedback, and resulted in an executable set of TTP, which move the use of non-lethal weapons beyond force protection into force application.



U.S. and Thai military police participate in a non-lethal familiarization fire during Cobra Gold 12.



At exercise Point Defender, the Distributed Sound and Light Array distracts suspects eluding police during a hostage-rescue scenario.



U.S. SOUTHERN COMMAND

U.S. Naval Forces Southern Command directed exercise Southern Partnership Station 2012 with the goals of enhancing cooperative partnerships and improving operational readiness. The exercise, which is a series of U.S. Navy deployments, involved U.S. military teams working with Caribbean, and Central and South American militaries and civilian security forces. As part of the exercise, U.S. Marines from High Speed Vessel 2 Swift collaborated with United Nations Police to conduct non-lethal weapons training with the Haitian National Police. The training included classroom and practical exercises on crowd control and the escalation of force. The focus of the event's training, military engagements, and community relations projects was to enhance regional stability and security.



European Combatant Command Liaison Officer demonstrates the proper set-up and operation of a Long Range Acoustic Device.



U.S. Senate Armed Service Committee professional staff members gain first-hand experience with non-lethal weapons during a range day this fall at Marine Corps Base Quantico, Va.

CONGRESSIONAL ENGAGEMENTS



Lieutenant General Richard P. Mills, Commanding General, Marine Corps Combat Development Command, looks on as U.S. House Majority Leader Eric I. Cantor is briefed on DoD non-lethal technologies, including the millimeter wave Active Denial Technology, by Susan LeVine, Principal Deputy, Joint Non-Lethal Weapons Directorate, Quantico, Va. Lieutenant General Mills also provided insight on the Marine Corps' research and development efforts.

Throughout the year, the Joint Non-Lethal Weapons Directorate continued its outreach efforts to educate various stakeholders about the unique attributes and role of non-lethal weapons, and how their capabilities support U.S. military strategy and military commander's operational requirements. The Directorate's ongoing engagements with Congress help ensure that legislators have current information on the status of the DoD Non-Lethal Weapons Program. This is particularly important as Congress continues to express interest in existing and promising non-lethal capabilities, including Active Denial Technology. In coordination with DoD 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—briefed members of Congress at the Directed Energy to DC (DE2DC) Exhibition event held in the Rayburn House Office Building in Washington, D.C., March 2012. The Directed Energy Professional Society organized the event under the sponsorship and support of the Congressional Directed Energy Caucus and the High Energy Laser-Joint Technology Office. The Joint Non-Lethal Weapons Directorate hosted professional staff members from the U.S. House and Senate Armed Services Committees in August and September 2012 for a series of DoD Non-Lethal Weapons Program briefings and demonstrations. In December 2012, the Joint Non-Lethal Weapons Directorate, in coordination with the Marine Corps Warfighting Laboratory, hosted U.S. House Majority Leader Eric I. Cantor and Virginia State Senator Bryce E. Reeves who visited Marine Corps Base Quantico, Va., to learn about the wide range of technologies the two organizations are exploring.



COLLABORATION

A few vehicles approach a checkpoint, which is clearly marked with dual-language signs directing drivers to slow down and to follow directions. As a checkpoint guard, you see a van coming toward you that is not obeying signs or slowing down...

What do you do? Whether it is a military checkpoint, a border crossing, or an entrance to a public venue, military personnel, government agents, and law enforcement officers must routinely determine whether to use lethal force in response to an individual's suspicious behavior. Such similar missions result in comparable non-lethal capabilities requirements for the DoD Non-Lethal Weapons Program and other government agencies. Because of these shared requirements, the Program seeks ways to collaborate with these government agencies on research and development efforts to leverage and maximize overall efficiency and cost-effectiveness.



The Joint Improvised Explosive Device Defeat Organization

in conjunction with the U.S. Army is developing the Vehicle Borne Improvised Explosive Device System of Systems, which will be an integrated, multi-modal sensing system for use at entry control points and critical points of entry. This effort will evaluate the DoD Non-Lethal Weapons Program's Pre-Emplaced Vehicle Stopper prototype, developed by the Naval Surface Warfare Center, Dahlgren Division. The Pre-Emplaced Vehicle Stopper is a non-intrusive device that provides an electrical pulse through deployed contacts, to shut down power train electrical circuits or components.



A vehicle approaches the Pre-Emplaced Vehicle Stopper.

Engagements WITH Academia

The DoD Non-Lethal Weapons Program values its interaction with industry and academia in conceptualizing and developing state-of-the-art, non-lethal capabilities. The Program engages academic basic science and engineering researchers, product developers, manufacturers, industry representatives, and other government agencies to develop non-lethal, counter-personnel and counter-materiel solutions for our military's requirements.

Working with academic institutions provides the Program with many benefits, including their ability to take a concept and elevate it to a higher technology readiness level for transition to a government laboratory.

The Pennsylvania State University is spearheading the Program's effort to stimulate academic research in next-generation non-lethal weapon technologies. The University plans to nominate five high-priority, non-lethal weapon technology areas and work with academic institutions that are recognized as leaders in these fields. The first of these five technology areas is non-lethal laser induced plasma effects with **the University of Colorado-Boulder**, **the University of Texas at Austin**, and **the University of Arizona**. Nanosecond electrical pulse work with **Old Dominion University** is the second technology effort. The remaining three efforts are under review.

Other academic institutions that recently have worked with the Program in advancing the state-of-the-art non-lethal technologies include:

- **University of California-Davis**
- **University of Maryland**
- **University of Mississippi**
- **University of Missouri**
- **University of New Mexico**



University of New Mexico Research Park



University of California-Davis Millimeter-Wave Research Center



Old Dominion University Innovation Research Park

& Industry

Considerable efforts are being made to bring government and industry together to discuss opportunities in U.S. DoD non-lethal weapons development. The Joint Non-Lethal Weapons Directorate facilitates industry interface through several venues which include: onsite visits by the JNLWD Director and staff; hosting annual industry interface meetings; Advanced Planning Briefs to Industry; and Bi-Annual Joint Integration Program's Non-Lethal Weapons Symposiums and Range Demonstrations.

In June, the Joint Non-Lethal Weapons Directorate hosted a JNLWD Research and Technology Development Non-Lethal Weapons Industry Day at Quantico, Va. Program objectives, technical briefs, a planned business approach, projected schedules, and a selection of responses to posted requests for information were presented. The day-long event drew more than 100 members of industry and academia and provided a forum for industry to learn about and discuss non-lethal weapons research and technology development opportunities. All presentations are available and posted at: <http://jnlwp.defense.gov>.

Annual industry interface meetings at the Joint Non-Lethal Weapons Directorate are typically scheduled when a manufacturer is scheduled to be in the Washington, D.C. area while on other business. The Directorate's staff facilitates appropriate participation from the Directorate and Service representatives.

During 2012, the Directorate conducted approximately 25 industry interfaces. The Joint Non-Lethal Weapons Directorate teamed with the National Defense Industrial Association's (NDIA) Joint Armaments Conference in Seattle for Non-Lethal Weapons Advanced Planning Briefs. Addressed were requirements for the Directorate's Annual Science and Technology Broad Agency Announcement, as well as programmatic presentations from the Airburst Non-Lethal Munition, Spider Non-Lethal Launcher and Improved Flash Bang Grenade Program Managers. The Joint Non-Lethal Weapons Directorate plans to continue this alliance during May 2013 in Indianapolis, to include government Advanced Planning Briefs to Industry, a human effects tutorial and industry perspective briefings.

The Joint Integration Program's Non-Lethal Weapons Symposiums and Range Demonstrations allow for the non-lethal weapons industrial base to communicate with non-lethal weapons combat developers (requirements writers), material developers (project / program managers), and testers and evaluators. Also in attendance are warfighters who are either rotating in or recently rotated out of the current theatres of operation. The next event is planned for August 2013 in Harpers Ferry, W. Va. For more information about the DoD Non-Lethal Weapons Program and opportunities to help develop critically needed non-lethal technologies, visit: <http://jnlwp.defense.gov>.

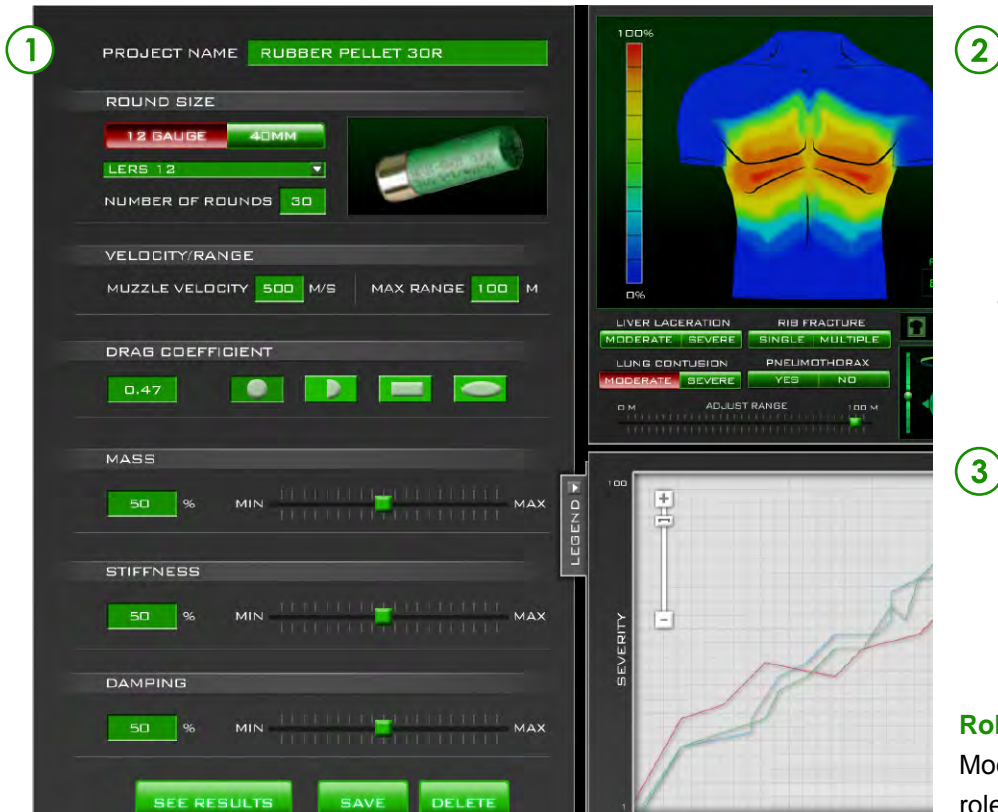
SOLICITATIONS

The DoD Non-Lethal Weapons Program appreciates organizations that are interested in furthering the development of the next generation of non-lethal weapons, devices, and munitions.

Visit <http://jnlwp.defense.gov/solicitations/default.html> for lists of current non-lethal capability solicitations, and links to U.S. government federal business and procurement opportunities related to non-lethal weapons.



The Special Operations Forces Industry Conference, in Tampa, Fla., provided military and defense industry representatives an opportunity to discuss non-lethal, and a broad range of other, technological solutions to U.S. forces' capability requirements.



This human effects modeling tool illustrates an assessment of a non-lethal, blunt-impact munition.

1. Adjustable parameters of a blunt-impact munition
2. Visual depiction of the risk of injury to a body region
3. Graphic depiction of the risk of injury as related to ranges

Role of Modeling and Simulation

Modeling and simulation plays an important role in the human effects characterization

HUMAN EFFECTS

What are Non-Lethal Weapons Human Effects?

Non-lethal human effects are the physiological and behavioral responses produced by non-lethal weapons. Understanding human effects is paramount in the development of non-lethal weapons, as they are often a major driver of non-lethal weapons research and technology development.

Human Effects Characterization Process

Department of Defense Instruction 3200.19, signed May 17, 2012, describes the procedures for human effects characterization in support of non-lethal weapons development. Generally, there are two goals of human effects characterization: determining both the effectiveness and risk of significant injury for non-lethal weapon stimuli. Often, focused research and analysis are required to ensure that the effectiveness and risk of significant injury of a given non-lethal weapon is well understood. A standard metric associated with the human effects characterization process is the Human Effects Readiness Level. Similar to technology readiness levels, which provide an assessment of the technology's maturity, the Human Effects Readiness Levels provide a measure of the availability, sufficiency, and maturity of data and information of the human effects.

process. Basic and applied human effects research are used to develop conceptual models of the underlying interactions between non-lethal stimuli and the human body. These conceptual models can then be transitioned to computational models and/or instrumented test targets where simulations can then be performed. Often, a large set of validated data are required to ensure that models and simulations of non-lethal stimuli accurately represent the human effects and predict outcomes. However, once in place, these modeling and simulation capabilities can reduce development cycle time and cost, and allow for larger exploration of the weapon design parameters.

To carry out the mission of developing high-quality modeling and simulation capabilities, the DoD Non-Lethal Weapons Program has developed the Human Effects Modeling and Analysis Program. This effort, led by the U.S. Air Force Research Lab's Human Effects Center of Excellence at Fort Sam Houston, Texas, entails a suite of modeling and simulation tools that can be used to characterize the effects and effectiveness of non-lethal stimuli, including light, impulse noise, heat, blunt-impact, and blast pressure. Modeling efforts are currently underway for additional non-lethal stimuli, which will eventually be added the Human Effects Modeling and Analysis Program modeling suite.



NATO + OTAN

NATO's North Atlantic Council identified non-lethal weapons as a critical, additional capability needed to meet the demands of future operations. Interest has increased further as a result of counterinsurgency experience in Afghanistan, peace support operations in the Balkans, and anti-piracy

efforts off of the Horn of Africa. Operational experience drives NATO's non-lethal weapons activities. Two such activities are the System Analysis and Studies-094, known as SAS-094, and the Defense Against Terrorism workshop held in conjunction with Counter Terror Expo 2012.

NATO SUPPORTS NON-LETHAL WEAPONS CONCEPT DEVELOPMENT AND EXPERIMENTATION

SAS-094 is providing analytical support for the development and experimentation of NATO and national concepts. SAS-094's work builds on the recently completed NATO Non-Lethal Weapons Capabilities-Based Assessment (known as SAS-078) that identified and characterized NATO's requirements, capability gaps, and potential solutions. SAS-094 has military and technical experts from 10 nations and three NATO organizations addressing:

- ▶ **Non-Lethal Weapons Usage** — Examining military and law enforcement uses, NATO and national operational experience, lessons learned, and the role of non-lethal weapons in delivering effects
- ▶ **Simulation and Analysis Tools** — Identifying appropriate candidates, comparing their relevance, and assessing the ability to support non-lethal weapons concept experimentation
- ▶ **Concept Discovery** — Assessing existing concepts and the future security environment (particularly adversary capabilities and concepts) to identify non-lethal weapons implication

- ▶ **Concept Development** — Conducting a workshop to examine a wide range of scenarios, missions, situations, and non-lethal weapon roles to support concept development
- ▶ **Concept Experimentation** — Preparing, conducting, and analyzing results from wargames, modeling and simulation, and/or field experiments to assess and refine concepts

NATO's System Analysis and Studies Panel is actively highlighting SAS-094's work. The Panel selected SAS-094 for inclusion in the August 2012 International Symposium on Military Operational Research and the September 2012 Science and Technology Board Symposium on Urban Operations Technologies.

DEFENCE AGAINST TERRORISM WORKSHOP

NATO held its Defence Against Terrorism, or DAT, workshop in conjunction with Counter Terror Expo 2012. The workshop provided an opportunity for DAT's 10 initiatives to report on their status and future plans. Of the 10 initiatives, one known as DAT-11 is on non-lethal capabilities. DAT-11 reported on multiple technology demonstrations (culminating in the October 2011 North American Technology Demonstration),

analysis of capabilities relevant to the International Security Assistance Force in Afghanistan, and plans for a new initiative that will begin in December 2012. Of note, most DAT initiatives (specifically those on: Protection of Harbors and Ports; Force Protection/Survivability; Chemical, Biological, Radiological, Nuclear and High-Yield Explosives; Countering Improvised Explosive Devices; Explosive Ordnance Disposal/Consequence Management; and Intelligence, Surveillance, Reconnaissance and Target Acquisition) made direct mention of non-lethal weapons requirements and technologies.

The broader Counter Terror Expo 2012 event drew a record 8,500 members of the global counter-terror community to London in April. Four hundred companies displayed a diverse range of technologies, including non-lethal weapons such as the Long Range Acoustic Device®, blunt-impact munitions, and barrier systems. National defense and security officials, international policy makers, and industrial representatives gave formal presentations, and 12 technical workshops (including the DAT workshop) were held.

MISCONCEPTIONS

Non-lethal weapons are “niche” capabilities primarily associated with force protection.

The Active Denial System is a “pain ray.”

Non-lethal weapons have legal issues.

Non-lethal weapons can replace lethal weapons.

vs. FACTS

Non-lethal weapons can play a critical role in force application and force protection. These broad-based non-lethal technologies fill gaps in the escalation of force in between “shouting and shooting” in the complex missions our Service members face, from peacekeeping and humanitarian scenarios to full-scale combat operations. Non-lethal weapons allow a commander to elevate or decrease his response to a suspected target as the situation changes.

The Active Denial System, known as ADS, is not a “pain ray.” The ADS is a non-lethal directed-energy weapon that provides a quick and reversible heating sensation. The sensation immediately ceases when the individual moves out of the beam.

Any new weapon the DoD develops is required to undergo a thorough legal, treaty and arms control compliance review prior to fielding. Non-lethal weapons are no exception. All previously and currently fielded non-lethal weapons have undergone legal reviews to ensure consistency with domestic law, and compliance with obligations assumed by the U.S. under applicable treaties, customary international law, and the law of armed conflict.

Non-lethal weapons are not a substitute for the application of lethal force. When employed, non-lethal weapons are always backed by lethal means. As an adjunct to lethal force, however, they can be a powerful addition to the warfighter’s toolkit.

NON-LETHAL WEAPONS ARE ALWAYS BACKED BY LETHAL FORCE





A U.S. Marine from the ground combat element for Security Cooperation Task Africa Partnership Station 12, loads a 12 gauge sock round into his pump action shotgun during non-lethal weapons training aboard Stone Bay, N.C., April 23, 2012. This training is part of APS-12's special operations capabilities certification in support of their upcoming deployment to Africa.



Executive Agent, DoD Non-Lethal Weapons Program
 General James F. Amos
 Commandant of the Marine Corps

Chairman, Joint Non-Lethal Weapons Program Integrated Product Team

Lieutenant General Richard T. Tryon, USMC
 Deputy Commandant, Plans, Policies & Operations, HQMC

Director, Joint Non-Lethal Weapons Directorate

Colonel Tracy J. Tafolla, USMC

Deputy Director

Douglas J. Jerothe: douglas.jerothe@usmc.mil

Principal Deputy, Policy & Strategy

Susan D. LeVine: susan.levine@usmc.mil

Principal Deputy, Technology Transition & Integration

John P. Keenan: john.keenan2@usmc.mil

Public Affairs Officer

Kelley S. Hughes: kelley.hughes@usmc.mil

Acquisition Division Chief

Kevin J. Swenson: kevin.swenson@usmc.mil

Technology Division Chief

David B. Law: david.b.law1@usmc.mil

Human Effects Engineer

Wesley A. Burgei: wesley.burgei@usmc.mil

Capabilities & Requirements Division Chief

Lieutenant Colonel Keith E. McCormack, USAF
keith.mccormack@usmc.mil

Combatant Commands Program Liaison Contacts

Timothy J. Fox: timothy.j.fox1@usmc.mil
 703-432-0896

Or
 Leonard L. Etcho: leonard.etcho@usmc.mil
 703-432-1778

Graphic Editor

Lance Corporal Joshua A. Brown, USMC
joshua.a.brown1@usmc.mil

Central Action Officers

The Services' designated action officers for non-lethal related matters.



U.S. Army Central Action Officer

573-563-7092



U.S. Marine Corps Central Action Officer

703-432-8140



U.S. Navy Central Action Officer

703-695-9772



U.S. Air Force Central Action Officer

210-925-5015



U.S. Coast Guard Central Action Officer

202-372-2043

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The U.S. Department of Defense Non-Lethal Weapons Program provides our operating forces escalation-of-force options, minimizing casualties and collateral damage.

Non-Lethal Warning Munition



Non-Lethal Dazzling Laser,
Acoustic Hailing Device & White Lights

U.S. Fleet Forces Command's Trident Warrior 2012 Spiral 1 exercise integrated non-lethal weapons onto the U.S. Navy Autonomous Maritime Navigation unmanned surface vessel. Several non-lethal weapons were demonstrated as shown above.

Joint Non-Lethal Weapons Directorate
Telephone: 703-784-1977

Scan this QR code with your
camera phone to go directly to
<http://jnlwp.defense.gov>



HEADQUARTERS U.S. MARINE CORPS
JOINT NON-LETHAL WEAPONS DIRECTORATE
3097 RANGE ROAD
QUANTICO, VA 22134-5100
OFFICIAL BUSINESS