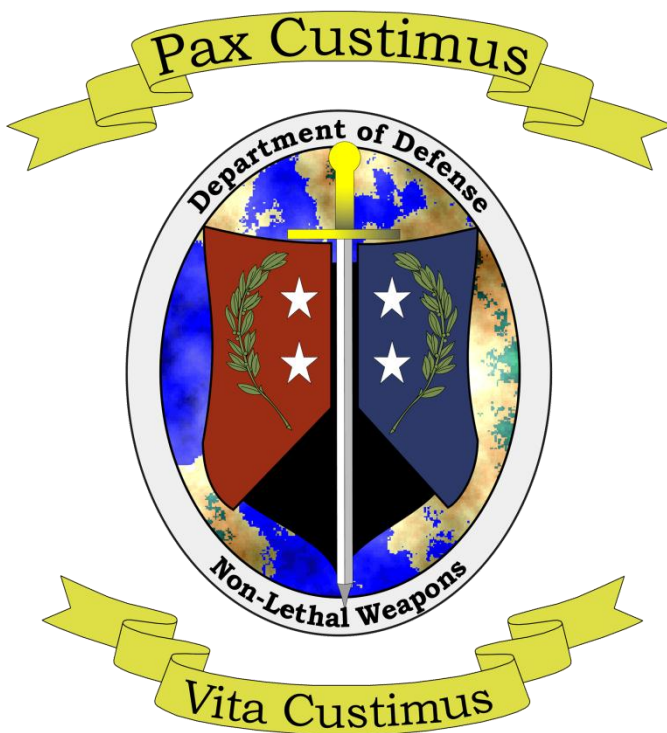


# ***Non-Lethal Weapons (NLW) Reference Book***

<http://jnlwp.defense.gov>



**2012**

***DISTRIBUTION STATEMENT A:*** *Approved for public release; distribution unlimited.*

# Report Documentation Page

Form Approved  
OMB No. 0704-0188

Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

1. REPORT DATE <b>2012</b>		2. REPORT TYPE		3. DATES COVERED <b>00-00-2012 to 00-00-2012</b>	
4. TITLE AND SUBTITLE <b>Non-Lethal Weapons (NLW) Reference Book</b>				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) <b>Joint Non-Lethal Weapons Directorate, 3097 Range Road, Quantico, VA, 22134</b>				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT <b>Approved for public release; distribution unlimited</b>					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT <b>unclassified</b>	b. ABSTRACT <b>unclassified</b>	c. THIS PAGE <b>unclassified</b>			

Intentionally Blank

# *Table of Contents*

<b>Non-Lethal Weapons Definition</b>	<b>i</b>
<b>DoD Non-Lethal Weapons Program Background</b>	<b>i</b>
<b>Frequently Asked Questions</b>	<b>ii</b>
<b>Policy References</b>	<b>v</b>

## *Section A*

### *COUNTER-PERSONNEL (CP) FIELDDED NLW*

<b>Non-Lethal Capability Sets (NLCS)</b>	<b>1</b>
<b>Escalation of Force-Mission Modules (EoF-MM)</b>	<b>1</b>
<b>National Guard Bureau (NGB)</b>	<b>1</b>
<b>Domestic Operations Kits (DOK)</b>	
<b>Joint Non-Lethal Warning Munitions (JNLWM)</b>	<b>2</b>
<b>Green Lasers</b>	<b>2</b>
<b>Acoustic Hailing Devices (AHD)</b>	<b>2</b>
<b>Enhanced Underwater Loudhailer (eLOUD™)</b>	<b>3</b>
<b>X26 TASER®</b>	<b>3</b>
<b>FN 303®</b>	<b>3</b>
<b>Stingball Grenade</b>	<b>4</b>
<b>12 Gauge Munitions</b>	<b>4</b>
<b>40mm Munitions</b>	<b>4</b>
<b>66mm Light Vehicle Obscurant Smoke Systems (LVOSS)     and Vehicle Launched NL Grenades (VLNLG)</b>	<b>5</b>
<b>Vehicle Non-Lethal/Tube Launched Munition System     (VENOM™)</b>	<b>5</b>
<b>Modular Crowd Control Munitions (MCCM)</b>	<b>5</b>
<b>M84 Flash Bang Grenade</b>	<b>6</b>
<b>NICO BTV-1 Flash Bang Grenade</b>	<b>6</b>
<b>Oleoresin Capsicum (OC) Dispensers</b>	<b>6</b>

### *CP PROTOTYPE NLW*

<b>Active Denial System (ADS)</b>	<b>7</b>
<b>Distributed Sound and Light Array (DSLAs)</b>	<b>7</b>
<b>Navy Anti-Swimmer Grenade</b>	<b>7</b>

# *Table of Contents (cont.)*

## *CP DEVELOPMENTAL NLW*

<b>Improved Flash Bang Grenade (IFBG)</b>	<b>8</b>
<b>Airburst Non-Lethal Munitions (ANLM)</b>	<b>8</b>
<b>12 Gauge Non-Lethal Extended Range Marking Munition</b>	<b>8</b>
<b>Long Range Ocular Interruption (LROI)</b>	<b>9</b>
<b>Ocular Interruption (OI)</b>	<b>9</b>
<b>Human Electro-Muscular Incapacitation (HEMI)</b>	<b>9</b>
<b>Mission Payload Module Non-Lethal Weapons System (MPM NLWS)</b>	<b>10</b>
<b>XM7 Spider Non-Lethal Launcher (NLL)</b>	<b>10</b>

# ***Table of Contents (cont.)***

## *Section B*

### *COUNTER-MATERIEL (CM) FIELDDED NLW*

<b>Caltrops</b>	<b>12</b>
<b>Spiked Strip</b>	<b>12</b>
<b>M2 Vehicle Lightweight Arresting Device (VLAD)</b>	<b>12</b>
<b>Portable Vehicle Arresting Barrier (PVAB)</b>	<b>13</b>
<b>Running Gear Entanglement System (RGES)</b>	<b>13</b>

### *CM PROTOYPE NLW*

<b>Pre-emplaced Electric Vehicle Stopper (PEVS)</b>	<b>14</b>
---	-----------

### *CM DEVELOPMENTAL NLW*

<b>Vehicle Lightweight Arresting Device (VLAD) Single Net Solution (SNS) with Remote Deployment Device (RDD)</b>	<b>15</b>
<b>Vessel Stopping Entanglement</b>	<b>15</b>
<b>Multi-Frequency Radio Frequency (RF) Vehicle Stopper</b>	<b>15</b>

### *NLW VENDOR LISTING*

<b>Product/Manufacturer/Web Site List</b>	<b>16</b>
---	-----------

# ***Non-Lethal Weapon Definition***

Non-Lethal Weapons (NLW) are defined as “Weapons, devices and munitions that are explicitly designed and primarily employed to incapacitate targeted personnel or materiel immediately, while minimizing fatalities, permanent injury to personnel, and undesired damage to property in the targeted area or environment. NLW are intended to have reversible effects on personnel or materiel.”

## ***DoD Non-Lethal Weapons Program Background***

The DoD NLW Program was established to provide warfighters with NLW that support the full-range of military operations. The program began in 1996 as a Congressional initiative. DoD Directive 3000.3 establishes policy and assigns responsibilities for the DoD NLW Program. It is DoD policy that;

- NLW should be designed to help decrease post-conflict reconstruction costs.
- NLW availability shall not limit a commander’s inherent authority and obligation to use all necessary means available and to take all appropriate action in self-defense.
- Presence, nor the potential effect of NLW, shall constitute an obligation for their employment or a higher standard for employment of force than provided for by applicable law.
- NLW shall not be required to have a zero probability of producing fatalities or permanent injuries.
- NLW may be used in conjunction with lethal weapon systems to enhance the latter’s effectiveness and efficiency in military operations.

# *Frequently Asked Questions*

<p><b>Legal Use of NLW</b></p>	<p><b>QUESTION:</b> Do NLW legal considerations differ from lethal weapons?</p> <p><b>ANSWER:</b> No. In accordance with DoD Directives 3000.3, 2060.1 and U.S. Law, both lethal and NLW must be reviewed to ensure that they comply with U.S. domestic and applicable international laws and treaties, to include the Law of Armed Conflict (Law of War). Preliminary legal and treaty compliance reviews allow the Joint Non-Lethal Weapons Directorate (JNLWD) to ensure funds are focused on viable non-lethal technologies. Based on these reviews, there are no restrictions on the continued development of NLW. Final legal reviews are still required for NLW in the developmental and conceptual stages.</p>
<p><b>NLW Definition</b></p>	<p><b>QUESTION:</b> What is considered a NLW?</p> <p><b>ANSWER:</b> The definition of NLW includes “weapons, devices and munitions.” This definition is very broad and includes devices and munitions that are not normally considered “weapons,” such as acoustic hailing devices.</p>
<p><b>Employment Requirements</b></p>	<p><b>QUESTION:</b> Are NLW required to be used prior to lethal weapons?</p> <p><b>ANSWER:</b> No. There is no requirement to use NLW prior to using lethal weapons or employing deadly force. Based on the threat, target, and situation, U.S. forces may immediately employ lethal weapons and deadly force.</p>
<p><b>Use of Force</b></p>	<p><b>QUESTION:</b> Why are NLW important?</p> <p><b>ANSWER:</b> NLW provide another “option” for the force. In past operations, the effective employment of NLW resolved escalation of force situations. Specifically, the NLW created the right “direct effect” on the personnel/materiel targeted. The use of NLW has also generated positive “psychological effects” on others in the area and helped to contribute to mission accomplishment. The perceptions associated with the use of NLW have been a positive and powerful influence in local communities in “winning the hearts and minds” of the local populace. The employment of NLW has helped reduce the loss of life and collateral damage.</p>



# *Frequently Asked Questions*

<p><b>Riot Control Agents</b></p>	<p><b>QUESTION:</b> What limitations exist regarding the use of a Riot Control Agent (RCA)?</p> <p><b>ANSWER:</b> Strict laws, regulations, and Rules of Engagement (ROE) exist to control the use of NLW RCAs. For example, the U.S., by Executive Order No. 11850, 8 April 1975, 40 Fed. Reg. 16187, renounced as a matter of national policy, the first use of RCAs in war except in defensive military modes to save lives such as:</p> <ul style="list-style-type: none"><li>•Riot control situations in areas under direct and distinct U.S. military control, to include controlling rioting prisoners of war.</li><li>•Situations in which civilians are used to mask or screen attacks and civilian casualties can be reduced or avoided.</li><li>•Rescue missions in remotely isolated areas, of downed aircrews and passengers, and escaping prisoners.</li><li>•Rear echelon areas outside the zone of immediate combat to protect convoys from civil disturbances, terrorists and paramilitary organizations.</li></ul> <p>NOTE: Specific authorization must be received to employ RCAs.</p>
<p><b>Allied and Multi- National Operations</b></p>	<p><b>QUESTION:</b> What NLW considerations are important during Allied and Multi-National Task Force Operations?</p> <p><b>ANSWER:</b> The availability and employment of NLW will vary with other Allied and Coalition partners. The lack of equal access to NLW presents interoperability concerns and provides force and operational seams that an adversary could try to exploit. These concerns should be addressed during mission planning and integrated into operational plans. Finally, mission-specific policies should address the different NLW capabilities possessed by the various members of the coalition in a way that minimizes interoperability issues and adversary exploitation.</p>

# *Frequently Asked Questions*

<p><b>NLW Identifiable Markings</b></p>	<p><b>QUESTION:</b> Are NLW identified by specific markings or colors?</p> <p><b>ANSWER:</b> The current U.S. policy is to not change the appearance of NLW to distinguish them from their lethal counterparts, but rather develop systems that have a dual capability in delivering both lethal and non-lethal munitions/effects as the situation dictates. Several U.S. Allies have expressed a desire to clearly distinguish NLW from lethal weapons by some method, such as coloring NLW blue or orange. While this may be preferable in some situations, including crowd control and to avoid mistakenly using a lethal weapon, this is not preferred by the U.S. A NLW that is marked with distinct colors or markings would make it easy for an adversary to identify and counter that NLW.</p>
<p><b>Optical Distractors</b></p>	<p><b>QUESTION:</b> What limitations exist regarding the use of a Optical Distractors (e.g., Dazzling Lasers)?</p> <p><b>ANSWER:</b> Strict laws, SECDEF guidance, and ROE exist to control the use of some Optical Distractors. For example, Certain Conventional Weapons Convention Protocol IV, ratified by the United States, requires its parties to take all feasible precautions to avoid the incidence of permanent blindness to unenhanced vision training.</p>

# *Policy References*

## **TREATIES**

1. Convention (IV) Respecting the Laws and Customs of War on Land and its Annex: Regulation Concerning the Laws and Customs of War On Land. The Hague, 18 October 1907.
2. Protocol for the Prohibition of the Use of Asphyxiating, Poisonous or other Gases, and of Bacteriological Methods of Warfare. Geneva, 17 June 1925.
3. Geneva Convention (I) for the Amelioration of the Condition of the Wounded and Sick in the Armed Forces in the Field. Geneva, 12 August 1949.
4. Geneva Convention (II) for the Amelioration of the Condition of the Wounded, Sick and Shipwrecked Members of Armed Forces at Sea. Geneva, 12 August 1949.
5. Geneva Convention (III) Relative to the Treatment of Prisoners of War. Geneva, 12 August 1949.
6. Geneva Convention (IV) Relative to the Protection of Civilian Persons in Time of War. Geneva, 12 August 1949.
7. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, 10 April 1972.
8. Convention on the Prohibition of Military or any Hostile Use of Environmental Modification Techniques, 10 December 1976.
9. Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts (Protocol I), 8 June 1977. [The United States is not a party to this Protocol. Many of its provisions are acceptable to us as customary international law, but we strongly object to several. Most of our Allies have ratified this Protocol.]
10. Protocol Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of Non-International Armed Conflicts (Protocol II), 8 June 1977. [The United States is not a party to this Protocol, but we deem most of it as customary international law. It has been forwarded to the Senate for its advice and consent to ratification, but the Senate has taken no action on it.]
11. United Nations Convention on Prohibitions or Restrictions on the Use of Certain Conventional Weapons Which May be Deemed to be Excessively Injurious or to Have Indiscriminate Effects (UNCCW). Geneva, 10 October 1980.

# *Policy References*

12. UNCCW Protocol on Non-Detectable Fragments (Protocol I). Geneva, 10 October 1980.
13. UNCCW Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II). Geneva, 10 October 1980.
14. UNCCW Protocol on Prohibitions or Restrictions on the Use of Incendiary Weapons (Protocol III). Geneva, 10 October 1980.
15. Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction. Paris, 13 January 1993.
16. UNCCW Protocol on Blinding Laser Weapons (Protocol IV to the 1980 Convention), 13 October 1995.
17. UNCCW Protocol on Prohibitions or Restrictions on the Use of Mines, Booby-Traps and Other Devices (Protocol II, as amended on 3 May 1996, “Amended Mines Protocol”).
18. Ottawa Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction, 18 September 1997. [The United States is not a party to this Convention, but the vast majority of our allies have ratified it.]
19. Rome Statute of the International Criminal Court, 17 July 1998. [The United States is not a party to this Treaty, but it entered into force on 1 July 2002.]
20. UNCCW Protocol on Explosive Remnants of War (Protocol V), 28 November 2003.

## **DOMESTIC LAW**

1. Biological Weapons Anti-Terrorism Act of 1989, 18 U.S.C. § 175, 2004.
2. Chemical Weapons Convention Implementation Act of 1998, div. I, title II, § 201(a), 18 U.S.C. § 229, 2004.
3. National Defense Authorization Act for FY 1996, Pub. L. No. 104-106, § 219, 110 Stat. 186, 223-224, 1995.

# *Policy References*

## **POLICIES AND REGULATIONS**

1. DoDD 2060.1, Implementation of, and Compliance with, Arms Control Agreements, 9 January 2001, certified current as of 24 November 2003.
2. DoDD 3000.3, Policy for Non-Lethal Weapons, 9 July 1996, certified current as of 21 November 2003.
3. DoDI 3200.19, Non-Lethal Weapons (NLW) Human Effects Characterization, 17 May 2012.
4. DoDD 5000.01, The Defense Acquisition System, 12 May 2003, certified current as of 20 November 2007.
5. DoDD 2311.01E, DoD Law of War Program , incorporating change 1, certified current as of 22 February 2011.
6. DoDD 3216.02, Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research, 25 March 2002, certified current as of 24 April 2007.
7. DoDD 5210.56, Use of Deadly Force and the Carrying of Firearms by DoD Personnel Engaged in Law Enforcement and Security Duties, 1 April 2011.
8. DoDI 6055.11, Protecting Personnel from Electromagnetic Fields, 19 August 2009.
9. DoDI 6055.15, DoD Laser Protection Program, 4 May 2007.
10. CJCSI 3110.07C, Guidance Concerning Chemical, Biological, Radiological and Nuclear Defense and Employment of Riot Control Agents and Herbicides, 22 November 2006, certified current as of 21 November 2008.
11. CJCSI 3121.01B, Standing Rules of Engagement/Standing Rules for the Use of Force for US Forces, 13 June 2005, certified current as of 18 June 2008.
12. CJCSI 5810.1D, Implementation of the DoD Law of War Program, 30 April 2010.
13. Department of Health and Human Services Regulation, "Protection of Human Subjects," Title 45 CFR, pt. 46, revised January 15, 2009, effective July 14, 2009.
14. NATO Policy on Non-Lethal Weapons, 27 September 1999.

# Section A

## CP Fielded NLW



**Non-Lethal Capability Sets (NLCS).** A versatile package of commercial and government off-the-shelf mission enhancing equipment and munitions. NLCS provide the warfighter with a variety of acoustic, optical distraction, blunt trauma, irritant, and vehicle stopping NL options. Uses include access control points, checkpoints, convoy protection, vessel boarding, crowd control, and various other missions. Each Service fields NLCS tailored to its unique mission needs.

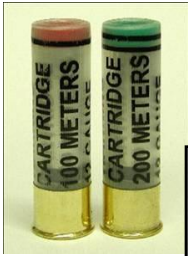


**Escalation of Force-Mission Modules (EoF-MM).** EoF-MM expand upon the NL concepts employed in previously fielded NLCS and provide commanders with an improved ability to respond to situations with varying levels of NL force by way of modular capability sets that can be tailored and scaled to fit missions down to the platoon/squad level. Equipment groups include: vehicle control point, entry control point, convoy security, crowd control, detain personnel, conduct search, clear facilities, conduct cordon, urban patrol and establish and secure perimeter. The USMC employs these kits.



**National Guard Bureau (NGB) Domestic Operations Kits (DOK).** As a means to increase the non-lethal capability of their security forces, the Air National Guard established Domestic Operations Kits to be distributed to 93 security forces units. They are a lightweight system of flyaway kits designed for rapid deployment by RAVEN teams on both domestic bases and overseas transiting airfields. These kits consist of riot gear, TASER®, munitions, and vehicle stopping capability to include spike systems and caltrops for shredding tires. The Air National Guard employs these kits.

# CP Fielded NLW



## Joint Non-Lethal Warning Munitions (JNLWM).

These munitions include 40mm grenade launcher munitions (100, 200, and 300 meters) and 12 gauge shotgun munitions (100 and 200 meters) that deliver flash bang effects with a smoke signature to provide a clear, unambiguous warning signal. Uses include deny access, move, and suppress individuals for convoy/vessel protection and port security. Multiple Services employ this device.



Green Lasers. Handheld or weapon mounted, non-blinding lasers that have reversible optical effects. Varying types are in use and include the LA-9/P™, LA-13/P™, and the GLARE® MOUT. The LA-9/P™ has a range of 65–1000 meters and a Safety Control Module that shuts the beam off when an object interrupts the beam within the 0–65 meter Nominal Ocular Hazard Distance. The GLARE® MOUT has a range of 18–760 meters and a Nominal Ocular Hazard Distance of 0–18 meters. These devices deliver flash and optical glare effects to deny access, move, or suppress individuals. Uses include entry control points, checkpoints, and convoy/vessel protection. Multiple Services employ these devices.



Hyperspike

MAD

LRAD

Acoustic Hailing Devices (AHD). Ground, vehicle, or vessel-mounted long-range hailing and warning devices that project sound waves at variable frequencies to deliver warning tones and intelligible voice commands beyond small arm ranges. The Long Range Acoustic Device (LRAD), Magnetic Audio Device (MAD), and Hyperspike are effective beyond small arm ranges. The Improved AHD (IAHD) provides improved intelligible voice commands with background noise present at the target's location. These devices deliver acoustic effects to deny access, move, and/or suppress individuals. Uses include access control points, checkpoints, convoy/vessel protection, vessel boarding, and crowd control. Multiple Services employ these devices.

# CP Fielded NLW



**Enhanced Underwater Loudhailer (eLOUD™).** A man-portable, easy-to-operate device comprised of a control unit and 75 foot transducer cable that can be deployed from a vessel or pier. The device transmits intelligible commands underwater to a distance of 457 meters and a depth of 40 meters to deny access, move, and/or suppress divers. Uses include vessel protection and harbor/port security operations. The U.S. Coast Guard employs this device.



**X26 TASER®.** A handheld weapon that launches two tethered barbs to deliver an electro-muscular disruption charge out to 35 feet to disable resistant individuals. This device enhances force protection and mission capabilities at access control points, checkpoints, and during detainee, security, and military law enforcement operations. Multiple Services employ this device.

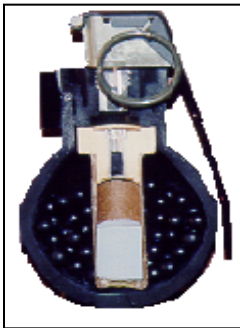


**FN 303®.** A compressed-air powered, shoulder-fired launcher that delivers exclusively non-lethal projectiles. Projectiles provide blunt impact, marking, and oleoresin capsicum (OC) effects to deny access, move, and/or suppress individuals from 5–100 meters. The FN 303® is used for crowd control, detainee operations, convoy protection, and cordon and search operations. The U.S. Army employs this system.





# CP Fielded NLW



**Stingball Grenade.** A hand-thrown or shotgun launched rubber grenade that releases rubber pellets and delivers blunt trauma effects against single and multiple targets to deny access, move, and/or suppress individuals. Stingball grenade uses include crowd control, detainee operations, and cordon and search operations. Multiple Services employ this grenade.



- 1      2      3

**12 Gauge Munitions.** Shotgun rounds that are designed to deliver blunt trauma effects to deny access, move, and/or suppress individuals. Uses include crowd control, convoy protection, vessel boarding, detainee operations, and cordon and search operations. Multiple Services employ these rounds.

- 1) Stingball round for area targets, 10–30 meters.
- 2) Fin stabilized round for point targets, 10–20 meters.
- 3) Sock round for point targets, 30–55 meters.



- 1      2      3

**40mm Munitions.** Grenade launcher rounds that deliver blunt trauma effects to deny access, move, and/or suppress individuals. Uses include crowd control, convoy protection, and vessel boarding. Multiple Services employ these rounds.

- 1) Sponge round for point targets, 10–50 meters.
- 2) Foam rubber baton round for point targets, 10–25 meters.
- 3) Crowd Dispersal Cartridge for area targets, 10–50 meters.

# CP Fielded NLW



**66mm Light Vehicle Obscurant Smoke System (LVOSS) and Vehicle Launched Non-Lethal Grenades (VLNLG).** A vehicle-mounted, remotely fired launcher that discharges 4-66mm grenades in a single salvo at 50, 75, or 100 meters to deliver flash bang, blunt trauma, smoke and RCA munitions to deny access, move, and/or suppress individuals. Uses include detainee operations, convoy protection, and crowd control. The U.S. Army employs these munitions.



**Vehicle Non-Lethal/Tube Launched Munition System (VENOM™).** A 40mm, multi-shot, electrically actuated, non-lethal munitions grenade launcher mounted to the Marine Corps Transparent Armored Gun Shield turret. The system consists of three banks of ten launch tubes, each at fixed angles of 10, 20, and 30 degrees from the horizontal, achieving 360° degree coverage and fires multiple flash bang grenades out to a range of approximately 130 meters. Uses include convoy protection and crowd control. The USMC employs these munitions.



**Modular Crowd Control Munition (MCCM).** A command detonated, hand-emplaced, non-lethal munition that discharges 600, .32 caliber rubber balls to deliver blunt trauma effects from 5–15 meters against individuals. The MCCM can be employed for crowd control and critical infrastructure protection. Multiple Services employ this munition.

# CP Fielded NLW



**MK84 Flash Bang Grenades.** A hand-thrown grenade that delivers a bright flash (optical effect) and loud bang (acoustic effect) against single or multiple targets to deny access, move, and/or suppress individuals. Uses include crowd control and room clearing. Multiple Services employ this munition.



**NICO BTV-1 Flash Bang Grenade.** Interim replacement for the MK-141 flash bang grenade based on an urgent needs statement. Improvements prevent serious injury to personnel in the event of premature detonation of the grenade, provide 3–5 seconds of flash blindness, a lower pressure to reduce blast-injury risk, and hand-safe capability with metal body and top and bottom venting. Uses include deny access, move, and/or suppress individuals during crowd control and room clearing. Multiple Services employ this device.



**Oleoresin Capsicum (OC) Dispensers.** Hand held dispensers providing variable range, single stream (MK-4) or area fog (MK-46) RCA against single or multiple targets to deny access, move, or suppress individuals with irritant effects. Uses include crowd control and detainee operations. Multiple Services employ these devices.

- 1) MK-46 Platoon RCA dispenser provides 12, one second bursts out to 25–30 feet.
- 2) MK-9 Squad RCA dispenser provides 10, .5 second bursts out to 6–15 feet.
- 3) MK-4/M39 Individual RCA dispenser provides 35, .5 second bursts out to 3–12 feet.

# CP Prototype NLW

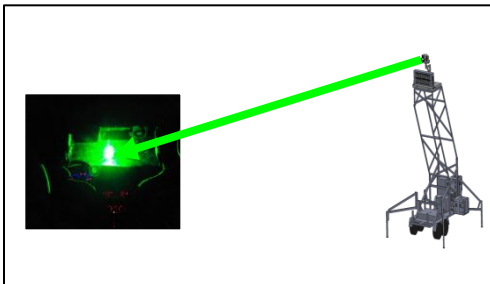


System 1

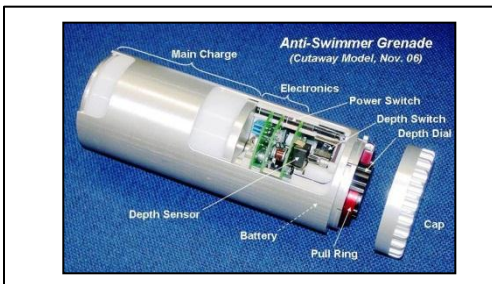


System 2

**Active Denial System (ADS).** A transportable, non-lethal, directed energy weapon system that projects millimeter wave energy which is absorbed by the outermost layer of an individual's skin. This energy, upon contact with the skin, results in an instantaneous heating sensation that will deny access, move, and/or suppress individuals at extended ranges (greater than small arms). Uses include crowd control, critical infrastructure protection, and humanitarian assistance/food distribution site protection. The JNLWD is the lead agency.



**Distributed Sound and Light Array (DSL).** DSLA uses a combined laser, white light, and acoustics to produce a synergistic engagement system. It can be used to hail, warn, and/or deter pedestrians and vehicle operators from approaching entry control points, mobile patrols/convoys, and vehicle checkpoints. The JNLWD is the lead agency.

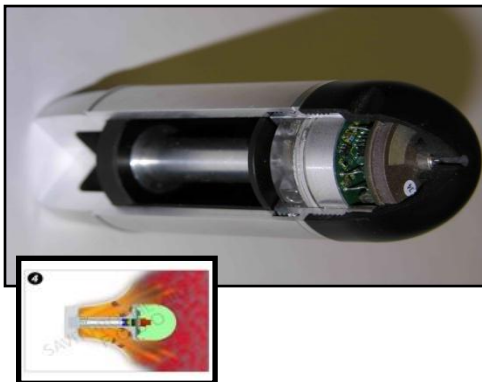


**Navy Anti-Swimmer Grenade.** A hand-thrown device with a design feature to allow user-selectable depth function that can be used to affect underwater swimmers and divers. The US Navy is the lead Service.

# CP Developmental NLW



**Improved Flash Bang Grenade (IFBG).** A hand-thrown grenade with a top and bottom venting design that enhances operator safety, produces a longer flash duration than existing flash bangs and contains environmentally safe payload components. This flash bang can be used to deny access, move, and/or suppress individuals and uses include crowd control and room clearing. The U.S. Special Operations Command is the lead agency.



**Airburst Non-Lethal Munitions (ANLM).** A low velocity 40mm round with a proximity fuse that stops the dispensing cartridge approximately 5 meters above the target to deliver an airburst flash bang effect at ranges from 35–150 meters. Development efforts are primarily focused on the M203 and M320 Grenade launchers. This munition can be used to deny access, move, and/or suppress individuals. Uses include access control, room clearing, vessel boarding and crowd control. The U.S. Army is the lead Service.

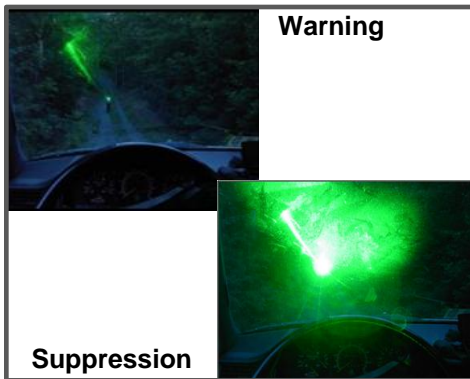


**12 Gauge Non-Lethal Extended Range Marking Munitions.** 12 gauge, blunt impact munition that will be effective at ranges greater than existing 12 gauge, blunt impact munition along with having a marking capability. These munition will deliver a blunt impact to deny access, move, and/or suppress individuals. Uses include crowd control, detainee operations, and cordon and search operations. The U.S. Army is the lead Service.

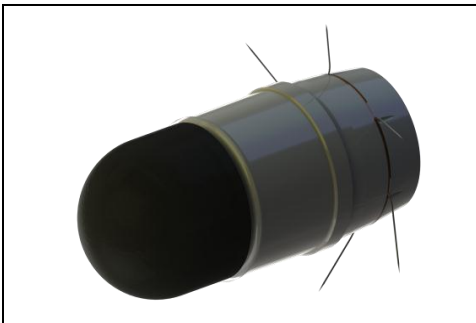
# CP Developmental NLW



**Long Range Ocular Interruption (LROI).** A device delivering a visible spectrum that will manage Nominal Ocular Hazard Distance at various ranges and have an effective range up to 3000 meters. The optical effect can deny access, move, and/or suppress individuals. Uses include vessel protection, entry control points, checkpoints, convoys, and maritime ports and security zones. The U.S. Navy is the lead Service.



**Ocular Interruption (OI).** A light-emitting, non-damaging, eye-safe visible laser or high powered broad band lamp designed to maximize range while minimizing Nominal Ocular Hazard Distance which can deliver effects at ranges from 2–500 meters. The optical effect can deny access, move, and/or suppress individuals. Uses include force protection, entry control points, checkpoints and convoys. The U.S. Marine Corps is the lead Service.

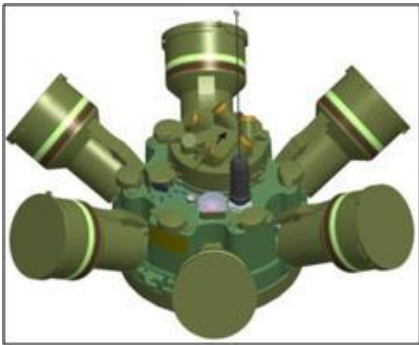


**Human Electro-Muscular Incapacitation (HEMI) Projectile.** Non-tethered munition that delivers an electro-muscular effect to disable individuals. The HEMI range is greater than current tethered systems and the duration of effect lasts up to three minutes. Uses include military law enforcement, detainee operations, vessel boarding, and access control. The JNLWD is the lead agency.

# CP Developmental NLW



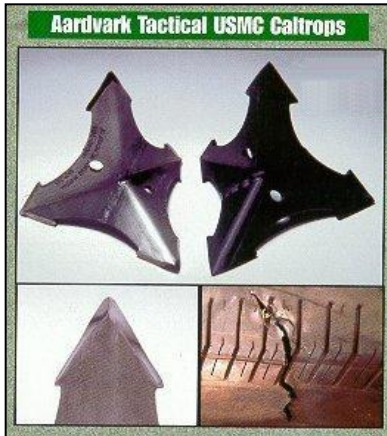
**Mission Payload Module Non-Lethal Weapon System (MPM NLWS)**. A tube launcher that can be vehicle, vessel or ground mounted to deliver a high volume of non-lethal munitions (flash bang) between 25–500 meters to deny access, move, and/or suppress individuals. Uses include crowd control, convoy protection, and maritime security. The U.S. Marine Corps is the lead Service.



**XM7 Spider Non-Lethal Launcher (NLL)**. A tube launcher that can be vehicle, vessel or ground mounted to deliver a high volume of non-lethal munitions (flash bang and stingball grenades) between 25–500 meters to deny access, move, and/or suppress individuals. Uses include crowd control, convoy protection, and maritime security. The JNLWD is the lead agency.

# Section B

## CM Fielded NLW



**Caltrops.** Three pronged, heavy gauge steel puncturing spikes that can be thrown or linked together to cause immediate, irreparable, catastrophic failure of pneumatic tires. These devices significantly impede wheeled vehicle progression at access control points and checkpoints. Multiple Services employ these devices.



**Spike Strip.** A hand-emplaced, prefabricated strip of materiel with embedded, hollow steel spikes used to impede vehicle progression. Spiked strips cause a rapid deflation of tires within 10 seconds, allowing for controlled deceleration at access control points and checkpoints. Multiple Services employ this device.



**M2 Vehicle Lightweight Arresting Device (VLAD).** A man-portable, 18 x 9 foot expandable, single use, spiked entanglement net that can be deployed in less than one minute to puncture and lock-up the leading tires of a small vehicle. This net can stop a 5,500 pound wheeled vehicle traveling at 30 mph, within 200 feet in a controlled manner at access control points and checkpoints. Multiple Services employ this device.



# CM Fielded NLW



**Portable Vehicle Arresting Barrier (PVAB).** A pre-emplaced, re-usable, mechanically activated vehicle capturing system capable of stopping a 7,500 pound vehicle traveling up to 45 mph within 200 feet. This device employs a vertical net, secured to the ground at both ends, to capture a small vehicle and force it to a controlled stop while also confining occupants inside. Uses include access control points and checkpoints. Multiple Services employ this device.



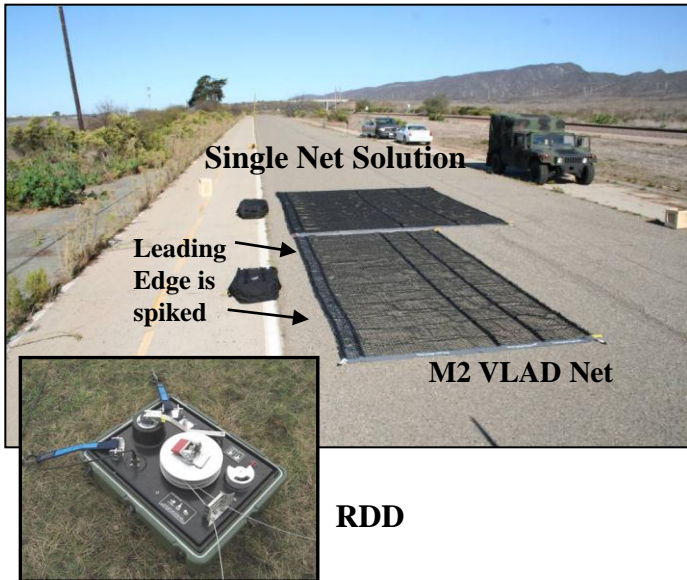
**Running Gear Entanglement System (RGES).** A pre-emplaced (static), shoulder-launched, or pursuit vessel side-launched entanglement net that will stop up to a 250 hp vessel traveling at speeds of up to 50 knots by entangling and stopping the propellers. This device can be used for harbor security, force protection, and vessel pursuit. A static barrier version has also been fielded by the USCG that can be deployed around a high-value asset or facility for defense against propeller-driven water craft. The U.S. Coast Guard employs this device.

# CM Prototype NLW



**Pre-emplaced Electric Vehicle Stopper.**  
A pre-emplaced, non-intrusive device that provides an electrical pulse through deployed contacts to shut down power train electrical circuits or components. This device can be used for force protection, access control points, roadblocks, and checkpoints to disable/stop vehicles. The JNLWD is the lead agency.

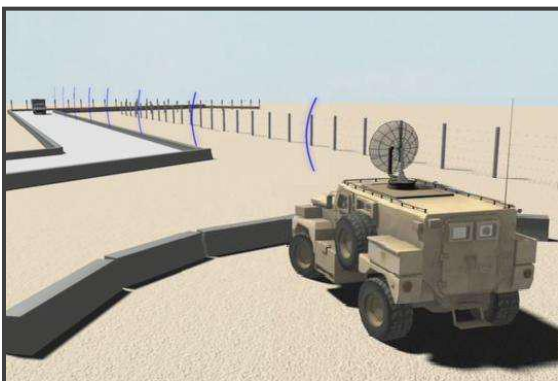
# CM Developmental NLW



**Vehicle Lightweight Arresting Device (VLAD) Single Net Solution (SNS) with Remote Deployment Device (RDD).** A pre-emplaced, man-portable net equipped with a unique barbed spike system and rapid deployment capability. It is designed to capture larger vehicles than the currently fielded M2 VLAD Net. The Remote Deployed Device (RDD) is an on command, electromechanical, spring-loaded system that is capable of pulling both the M2 VLAD and the SNS across a road to capture a wheeled vehicle. The SNS will capture a vehicle greater than 22,000 pounds traveling at 30 mph within 200 feet. The U.S. Army is the lead Service.



**Vessel Stopping by Entanglement.** An improved propeller entangler that has a more consistent capture rate of waterborne propeller-driven craft than RGES. This device can be used for harbor security, force protection, and vessel pursuit. The U.S. Coast Guard is the lead Service.



**Multi-Frequency Radio Frequency Vehicle Stopper.** A device delivering multiple radio frequencies that interfere with the vehicle electronics to stop the engine. This device can be used for force protection, access control points, roadblocks, checkpoints, mounted patrols, convoys, and vehicle pursuit/intercepts to stop vehicles. The JNLWD is the lead agency.

# NLW Vendor Listing

The compilation of commercial products below does not constitute an endorsement or solicitation by the Joint Non-Lethal Weapons Directorate.

Products	Manufacturer	Web Site
Less-Lethal munitions, 12 gauge, 37mm, and 40mm rounds and launchers, chemical and diversionary devices, OC delivery systems, and stun munitions	A.L.S. Technologies	<a href="http://www.alstechnologies.com">http://www.alstechnologies.com</a>
Non-Lethal Weapon integrator and distributor	Aardvark Tactical	<a href="http://www.aardvarktactical.com">http://www.aardvarktactical.com</a>
Virtual Interactive Training Systems	Advanced Interactive Systems (AIS)	<a href="http://www.ais-sim.com">http://www.ais-sim.com</a>
Non-Lethal ocular disruptor	Alfalight	<a href="http://www.alfalight.com">http://www.alfalight.com</a>
Remotely operated acoustic devices. 100/500/1000 x Acoustic hailing systems	American Technology Corporation	<a href="http://www.lradx.com">http://www.lradx.com</a>
Underwater Loud Hailing System (eLOUD)	Applied Physical Sciences Corporation	<a href="http://www.aphysci.com">http://www.aphysci.com</a>
Area Denial Fog	Arias Tech Ltd.	<a href="http://www.flashfogsecurity.com">http://www.flashfogsecurity.com</a>
12 gauge, 37mm, and 40mm less-lethal projectiles, foam rubber projectiles, "bean bag" projectiles, distraction devices, body armor, etc.	Armor Holdings	<a href="http://www.armorholdings.com">http://www.armorholdings.com</a>
SPIDER: area denial "man-in-the-loop" munition system	Alliant Tech Systems (ATK)	<a href="http://www.atk.com">http://www.atk.com</a>
NL Caseless Telescoping System (Launcher/Munition Feed)	Battelle	<a href="http://www.battelle.org">http://www.battelle.org</a>
Maritime security / defense products (Sea-Stinger, Buccaneer pneumatic launchers)	BCB International	<a href="http://bcbin.com">http://bcbin.com</a>
Non-Lethal GLARE® MOUT and LA-9/P™ laser dazzlers	B.E. Meyers & Co. Inc	<a href="http://www.bemeyers.com">http://www.bemeyers.com</a>
Beretta LTLX7000 – Constant kinetic 12 gauge using off-gassing and laser range finding to deliver the same non-lethal impact at various ranges	Beretta	<a href="http://www.berettausa.com">http://www.berettausa.com</a>
40mm Non-Lethal munitons/Launcher	Brugger & Thomet	<a href="http://www.bt-ag.ch">http://www.bt-ag.ch</a>
Aerosol PAVA and crowd management products, barrier type shields	Civil Defense Supply	<a href="http://www.civil-defence.org">http://www.civil-defence.org</a>
Non-cutting edge coiled-wire barriers/facility security barriers (cutting edge); air-mobile delivery systems for rapid deployment	Cochrane USA	<a href="http://www.cochranesteel.com">http://www.cochranesteel.com</a>
OC, distraction and rubber projectiles in 12 gauge, 37mm, and 40mm	Combined Systems, Inc.	<a href="http://www.combinedsystems.com">http://www.combinedsystems.com</a>
OC, distraction devices, less-lethal projectiles, foam rubber projectiles, and "bean bag" projectile in 12 gauge, 37mm, and 40mm	Condor S. A.	<a href="http://www.condornaletal.com.br">http://www.condornaletal.com.br</a>
Corner Shot 40™ an "Around the Corner" lightweight, breech-loading, single-shot 40 mm launcher	CornerShot	<a href="http://www.cornershot.com">http://www.cornershot.com</a>

# NLW Vendor Listing

The compilation of commercial products below does not constitute an endorsement or solicitation by the Joint Non-Lethal Weapons Directorate.

Products	Manufacturer	Web Site
Vessel Arrest Systems	Cortland Defence	<a href="http://www.cortlandcompany.com">http://www.cortlandcompany.com</a>
OC, distraction devices, less-lethal projectiles, foam rubber projectiles, and "bean bag" projectile in 12 gauge, and .50 cal	CQB Supply Inc.	<a href="http://cqbsupply.com">http://cqbsupply.com</a>
CUBIC-EST virtual training systems	CUBIC Defense Applications	<a href="http://www.cubic.com">http://www.cubic.com</a>
OC defense sprays, distraction devices	Defensive Protection Systems (DPS)	<a href="http://www.DPSOC.com">http://www.DPSOC.com</a>
Less-Lethal rail mounted launcher utilizing .68 cal permanent paint, OC projectiles	FN Herstal	<a href="http://www.fnhusa.com">http://www.fnhusa.com</a>
NLOES – Improved LVOSS 40mm system	General Dynamics Corporation	<a href="http://www.generaldynamics.com/">http://www.generaldynamics.com/</a>
OC spray and delivery systems	Guardian Protective Devices	<a href="http://www.guardpd.com">http://www.guardpd.com</a>
M320 40mm add-on grenade launcher	Heckler & Koch	<a href="http://www.hk-usa.com">http://www.hk-usa.com</a>
NL Diver Interdiction Systems	Hydroacoustics, Inc.	<a href="http://www.hydroacousticsinc.com">http://www.hydroacousticsinc.com</a>
Sound Commander® acoustic hailing device	IML Corp	<a href="http://www.imlcorp.com">http://www.imlcorp.com</a>
Voice Response Translator (VRT)	Integrated Wave Technologies	<a href="http://www.i-w-t.com">http://www.i-w-t.com</a>
CROWS system of systems	Kongsberg	<a href="http://kongsberg.com">http://kongsberg.com</a>
Rubber projectile sock rounds, distraction rounds, WASP products	Lamperd Less-Lethal	<a href="http://www.lamperdlesslethal.com">http://www.lamperdlesslethal.com</a>
Green lasers/laser dazzlers	Laserpath Inc.	<a href="http://www.laserpathtech.com">http://www.laserpathtech.com</a>
12 Gauge NOVA distraction rounds; 37/40 mm reusable adapter	Lightfield Less Lethal	<a href="http://litfld.com/wp/">http://litfld.com/wp/</a>
F.A.T.T.S. Virtual trainer.	Meggitt Training Systems	<a href="http://www.meggitttrainingsystems.com">http://www.meggitttrainingsystems.com</a>
Multi-Shot Accessory Underbarrel Launcher (MAUL).	Metal Storm	<a href="http://www.metalstorm.com">http://www.metalstorm.com</a>
Non-Lethal Mide Interference Grenade - MIG44	Mide Technology Corporation	<a href="http://www.mide.com">http://www.mide.com</a>

# NLW Vendor Listing

The compilation of commercial products below does not constitute an endorsement or solicitation by the Joint Non-Lethal Weapons Directorate.

Products	Manufacturer	Web Site
MILKOR 40mm multiple grenade launcher	MILKOR USA INC.	<a href="http://www.Milkorusainc.com">http://www.Milkorusainc.com</a>
12 gauge 37mm, 40mm less-lethal rounds	MK Ballistic Systems	<a href="http://www.mkballistics.com">http://www.mkballistics.com</a>
Virtual Interactive Training Systems	Motion Reality Inc.	<a href="http://www.motionrealityinc.com">http://www.motionrealityinc.com</a>
Afterburner 2000® and other aerosol delivery systems.	MSI Delivery Systems	<a href="http://www.msi-deliverysystems.com">http://www.msi-deliverysystems.com</a>
Pepper ball munitions and pepper ball compatible weapon systems	Non-Lethal Solutions	<a href="http://www.nonlethalsolutions.com">http://www.nonlethalsolutions.com</a>
OC, distraction devices, less-lethal projectiles, foam rubber projectiles, and "bean bag" projectile in 12 gauge, 37mm, and 40mm.	Non-Lethal Technologies Inc.	<a href="http://www.nonlethaltechnologies.com">http://www.nonlethaltechnologies.com</a>
PITBUL/VIPER Vehicle Lightweight Arresting Devices (VLADS)	Pacific Scientific Energetic Materials Corporation	<a href="http://psemc.com">http://psemc.com</a>
Heavier constructed expandable batons	Peacekeeper Products International	<a href="http://www.peacekeeperproducts.com">http://www.peacekeeperproducts.com</a>
Vehicle-mounted and handheld white search lights	Peak Beam Systems	<a href="http://www.peakbeam.com">http://www.peakbeam.com</a>
OC, distraction devices, less-lethal projectiles, foam rubber projectiles, and "bean bag" projectile in 12 gauge, 37mm, and 40mm	Police Ordnance Company	<a href="http://www.policeordnance.com">http://www.policeordnance.com</a>
Remotely operated weapons / delay / area denial systems	Precision Remotes	<a href="http://www.precisionremotes.com">http://www.precisionremotes.com</a>
12 gauge distraction munitions.	Primetake	<a href="http://www.primetake.co.uk">http://www.primetake.co.uk</a>
Remote Deployment Device (RDD) for the Vehicle Lightweight Arresting Device	QinetiQ	<a href="http://www.qinetiq.com">http://www.qinetiq.com</a>
40mm RP smoke, flash-bang, practice and CS round	Rheinmetall Waffe	<a href="http://www.americanrheinmetall.com">http://www.americanrheinmetall.com</a>
OC, distraction devices, less-lethal projectiles, foam rubber projectiles, and "bean bag" projectile in 12 gauge, 37mm, and 40mm	Lacroix Defence and Security	<a href="http://www.lacroixds.com">http://www.lacroixds.com</a>
First Defense® aerosols and less-lethal munitions	Safariland	<a href="http://www.safariland.com">http://www.safariland.com</a>
Less-Lethal 12 gauge and 37mm projectiles	Sage International	<a href="http://sageinternational ltd.com">http://sageinternational ltd.com</a>
40 mm Blunt Impact Projectile (BIP) / Lektrox – 40mm HEMI round	Security Devices International	<a href="http://www.securitydii.com/">http://www.securitydii.com/</a>
66 mm pneumatic launcher/40 mm gas launcher. Non-Lethal munitions development	SureShot Inc.	<a href="http://www.ssrcd.com">http://www.ssrcd.com</a>
X2, X26, X3 and XREP TASER® devices	TASER International	<a href="http://www.taser.com">http://www.taser.com</a>
TKO NLW Launcher (Battery Powered)/Munitions	Tiberius Arms	<a href="http://www.tiberiusarms.com">http://www.tiberiusarms.com</a>
LED light and integrated OC delivery system	Tigerlight	<a href="http://www.tigerlight.net">http://www.tigerlight.net</a>
Acoustic Hailing Devices (AHD)	Ultra-Electronics	<a href="http://www.ultra-electronics.com">http://www.ultra-electronics.com</a>

