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Department of Defense
Non-Lethal Weapons and Equipment Review

A Research Guide for Civil Law
Enforcement and Corrections

July 2002

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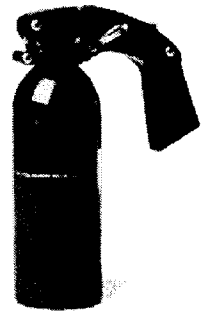
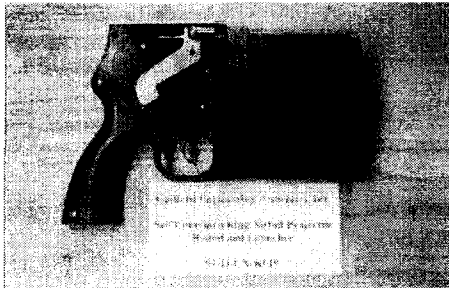
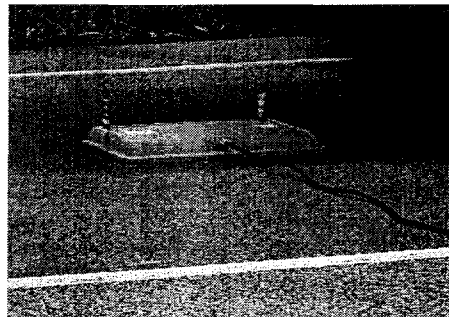
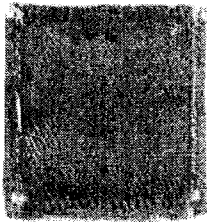
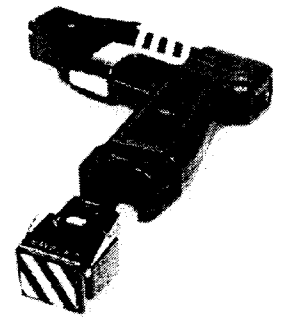
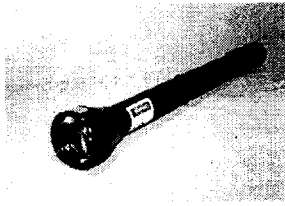
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National Security Research (NSR), Inc. is a small business established in 1984 to conduct objective research and analysis on issues related to national security policy. Located in Washington, DC, NSR provides advanced research, policy analysis, strategic assessment and planning, and tailored technical support for senior-level policy makers in government and industry.

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NIJ Less-than-Lethal Program

NIJ's Less-than-Lethal (LTL) program, operated by the Office of Science and Technology, is designed to identify, develop, and evaluate new or improved devices and other technology that will minimize the risk of death and injury to law enforcement officers, suspects, prisoners, and the general public. In addition, the less-than-lethal program contributes to the reduction of civil and criminal liability suits against police, sheriff, and corrections departments. Some of the projects currently under development or evaluation are acoustic (bioeffects), chemical (pepper spray), electrical (stun devices and projectiles), kinetic energy projectiles (shot bags and ring airfoil projectiles), light (lasers, flashing bright lights), nets (baton launched, projectile launched), and fleeing vehicle interdiction (mechanical and electric/electromagnetic). Future development and demonstration of electrical vehicle stopping devices and other technologies is currently being planned. Items shown below are representative of past, present, and future technology studies by the NIJ.



Forward

Beginning with Somalia in 1995, the U.S. Military has come to recognize the need to reduce the number of unintended casualties and infrastructure damage while performing these complex missions. The introduction and use of Non-Lethal Weapons (NLWs) is designed to provide field commanders with additional capabilities designed to augment, but not replace the U.S. military's highly lethal force. NLWs act as force multipliers enabling U.S. forces to discourage, delay or prevent hostile action, limit escalation where lethal force is not the preferred option, protect our forces, and temporarily disable equipment and facilities. The Department of Defense Directive 3000.3, "Policy for Non-Lethal Weapons," dated 9 July 1996 defines NLWs as, "...explicitly designed and primarily employed so as to incapacitate personnel and materiel while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment."

In addition to the U.S. Military, many Federal, State, and local civil law enforcement (CLE) and corrections agencies have, since the late 1980's, incorporated the use of NL (Non-Lethal) or Less-than-Lethal (LTL) technology into their daily effort to reduce the loss of life and prevent unnecessary damage to property. Through training, skillful deployment, and a growing experience with the use of LTL technology civil law enforcement agencies and departments have quelled prison riots, suppressed unruly mobs, neutralized hostile individuals, and prevented the unnecessary loss of life. In fact, civil law enforcement was initially responsible for providing training and technology assistance for the U.S. Military during its re-deployment to Somalia in 1995.

Both military and civil law enforcement agencies continue to partner in the development and training of NL/LTL technologies. As witnessed by September 11, 2001, the United States, its Military forces, and Federal, State, and local civil law enforcement agencies are facing new and complex threats that impact the safety and security of our operating forces and citizens abroad as well as our national security and protection at home. These new threats at home and the continued need for our Military to project force in situations not commonly suited for lethal engagement provide the impetus and future requirement for both Military and civil law enforcement to develop, field, and employ NL technology.

The purpose of this review is to provide U.S. Federal, State, and local civil law enforcement, agencies and departments with a ready reference guide of currently fielded Department of Defense (DoD) Non-Lethal Weapons (NLWs) and equipment. This review includes a brief program background for the DoD Joint Non-Lethal Weapons Program (JNLWP), the four branches of military service, and the Coast Guard. This review also includes a brief overview of Less-than-Lethal (LTL) programs in civil law enforcement, and a representative sampling of LTL weapons and equipment used by CLE.

The following equipment list does not constitute an endorsement by the Department of Justice or the National Institute of Justice and should not be considered by civil law enforcement agencies as an endorsement for their purchase or use.

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DoD Non-Lethal Weapons and Equipment Review

Introduction

This review offers a brief overview of the DoD Joint Non-Lethal Weapons Program (JNLWP), comprised of the Army, Marines, Navy, Air Force, and Coast Guard. For balance, this review also provides a brief overview of civil law enforcement department's requirement and use of LTL weapons and equipment. This review briefly discusses the weapons and equipment selection process for both the DoD and civil law enforcement. Appendix A and B contain listings of all currently fielded DoD and Coast Guard NLW equipment. Appendix C contains a small representative sampling of currently fielded LTL items from the U.S. Marshals Service, Los Angeles County Sheriff's Department, Seattle SWAT, Chicago Police Department, Washington, DC Metropolitan Police Department, and the Philadelphia SWAT. Provided in table format, each item contains a photo, descriptive paragraph, manufacturer, approximate price, and the items operational capability or use. Appendix D contains a listing of important NLW definitions and terms.

This review is not intended to provide an in-depth, comprehensive look at the current or future issues surrounding the DoD JNLWP. Additionally, this document does not include a review of current and future NLW research and development programs.

DoD NL/LTL Equipment Selection Process

The process of identifying and selecting effective NL/LTL weapons and equipment for the U.S. Military, Coast Guard, and civil law enforcement varies widely. In general, the process involves defining individual organizational requirements, conducting the appropriate level of research and development (R&D), and successfully reducing risk prior to equipping and training the user. In most cases the length and cost of the selection process is determined by organizational regulations and sophistication of the technology being considered. It takes far less time to conduct R&D for 12-gauge NL/LTL ammunition than it does to research directed energy technology. NL/LTL technologies generally fall into five categories. They include: chemicals, electrical devices, blunt impact munitions, directed energy, and miscellaneous or hybrid systems. Whatever the complexity of the technology the end result is to provide a value-added NL/LTL capability to the user.

Within the civil law enforcement community the cost to conduct R&D of LTL weapons and the level of funding available varies dramatically among organizations. In larger Federal and State agencies budgets generally range from several \$1,000 to, in rare cases, several \$100,000. In smaller local law enforcement departments R&D funding for LTL weapons and equipment development is minimal and in most cases non-existent. For many years, civil law enforcement organizations have relied upon LTL technology manufacturers and developers to design weapons and equipment to buffer this lack of R&D funding.

The National Institute of Justice also contributes R & D funding through its annual grant process. In most cases, however civil law enforcement organizations purchase commercial-off-the-shelf (COTS) items directly and conduct various forms of in-house field-testing to determine their effectiveness. In most organizations some formal acquisition board or committee examines

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manufacturer information, field test results, and reviews legal, ethical, and acceptability issues prior to determining approval for use.

In the DoD, the JNLWP is responsible for coordinating all NLW research and development among the four branches of the military and Coast Guard and manages an annual budget of approximately \$25 million. Although the DoD receives more funding than that of civil law enforcement, it is divided among many competing and equally important requirements. All military research and development is tightly regulated through DoD 5000.2, "Mandatory Procedures for Major Defense Acquisition Programs..." and managed by acquisition professionals. Not unlike civil law enforcement, the selection process of NLWs within the military is greatly dependent upon the complexity of technology and availability of funding.

Department of Defense Joint Non-Lethal Weapons Program

In early 1995, Marine Corps General Anthony Zinni was charged with protecting the final withdrawal of United Nations forces from Somalia and explored the prospects of using NLWs. General Zinni asked for and received a quick response to the fielding of NL capabilities. The U.S. Marine Corps and U.S. Army teamed to provide available NL technology for use in and around Mogadishu, Somalia. Although the NLW effects were marginal, General Zinni's aggressive support added credibility to the NLW effort.

In March 1996, Marine Corps General John J. Sheehan, Commander in Chief (CINC), U.S. Atlantic Command (USACOM); spoke at the Non-Lethal Defense Conference II, held in Washington. In his speech, General Sheehan examined the global requirements for use of non-lethal weapons and emphasized the necessity for these weapons to be standard-issue military hardware. Later, on 09 July 1996, DoD Directive 3000.3¹ was issued directing the establishment of a joint service organization responsible for the development and employment of non-lethal weapons. The directive designated the Commandant of the U.S. Marine Corps as Executive Agent (EA) for the DoD Non-Lethal Weapons Program, with the responsibility of providing "...program recommendations and for stimulating, integrating, and coordinating non-lethal weapons requirements."

As the Executive Agent for NLWs, the Commandant of the Marine Corps issued guidelines for the establishment of a more formal organizational structure for the Joint Non-Lethal Weapons Program (JNLWP). The JNLWP is chartered to develop and provide the Department of Defense with a fully integrated and coordinated Non-Lethal Weapons Program that meets the intent of Congress and provides the best Non-Lethal Weapons technologies for our operating forces.

Organizational Structure

A multi-service Integrated Product Team (IPT)² comprised of General Officers from all four branches of the military and the Coast Guard provides oversight of the program and reviews recommendations from the Joint Coordination and Integration Group (JCIG). Recommendations are forwarded to the EA for approval. The JCIG provides general leadership and direction to the program. Established in 1997, the Joint Non-Lethal Weapons Directorate (JNLWD) provides

¹ Department of Defense Directive 3000.3, "Policy for Non-Lethal Weapons," published 9 July 1996.

² Team composed of representatives from appropriate functional disciplines working together to build successful programs, identify and resolve issues, and make sound and timely recommendations to facilitate decision-making.

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day-to-day oversight of the DoD JNLWP. The JNLWD is a jointly manned activity supported by activity duty military, civil service, and support personnel, and located on U.S. Marine Corps base at Quantico, Virginia. Three major divisions comprise the JNLWD. They include: Concepts and Requirements, Technology, and Programs and Administration.

Purpose

The purpose of the JNLWP is to provide the most current and accurate information available on relative aspects of non-lethal technologies to the Joint Services, Warfighting Commanders, and other government agencies requiring the use of NLWs in the performance of their mission. Furthermore, the JNLWP is to provide the Joint Chiefs of Staff (JCS) and other responsible agencies with recommendations regarding the application of Non-Lethal technologies on a global basis through a life-cycle perspective including research, development, production, and deployment of those technologies.

The JNLWP manages an annual budget of approximately \$25 million. Major areas of budgetary investment include, but are not limited to the following areas:

- Acquisition
- Concept Exploration
- Advanced Concept Technology Demonstrations
- Science and Technology Development
- Human Effects Determination
- Studies and Analysis
- Experimentation
- Modeling and Simulation

Defining Non-Lethal Weapons

The Department of Defense Directive 3000.3, "Policy for Non-Lethal Weapons," dated 9 July 1996, defines NLWs as, "Weapons explicitly designed and primary employed so as to incapacitate personnel and materiel, while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment."

Unlike conventional lethal weapons that destroy their targets principally through blast, penetration, and fragmentation, non-lethal weapons employ other than gross physical destruction to prevent the target from functioning.

Non-Lethal Weapons are intended to have one, or both of the following characteristics:

- Relatively reversible effects on personnel and material.
- Affect objects differently within their area of influence.

Non-Lethal Weapons Core Capabilities and Functional Areas

In 2000, the JNLWP sponsored and conducted a year-long Joint Mission Area Analysis (JMAA) to identify and analyze known operational deficiencies, review required operational capabilities, and examine the ongoing development of NL technology. The JMAA provided an opportunity to coordinate and consolidate common needs and initiate the development of joint service

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requirements through a review, revision, and expansion of the initially identified six functional areas.

Culminating in 2001, the JMAA revised and expanded the six original functional areas by dividing them among three core capabilities. Forming the backbone of future NLWs requirements development and budgetary focus the three core capabilities and eight functional areas are as follows:

- Counter-personnel
 - Crowd Control
 - Incapacitate Individuals
 - Deny Area to Personnel
 - Clear Facilities/Structures/Areas
- Counter-material
 - Area Denial to Vehicles (land, sea, and/or airspace)
 - Disable/Neutralize Vehicles, Vessels, Aircraft, and Equipment
- Counter Capability
 - Disable/Neutralize Facilities and Systems
 - Deny Use of Weapons of Mass Destruction

Beyond the structure established in DoDD 3000.3, “Policy for Non-Lethal Weapons”, all four branches of the military and Coast Guard have established Non-Lethal Weapons program offices and managers to establish requirements and conduct research and development in conjunction with the JNLWP. The following sections provide brief overviews of each military branch and the Coast Guard.

United States Army Non-Lethal Weapons Program³

Since 1995, the U.S. Army has rapidly responded to over twenty Urgent Operational Requests for Non-Lethal (NL) munitions. These NL munitions were rapidly fielded to provide soldiers with capabilities to bridge the gap between “show of force” and lethal fire in Peacekeeping missions. To date, over 150,000 rounds of 40mm and 12 Gauge blunt impact small caliber NL munitions have been urgently fielded using accelerated materiel release fielding procedures, originally established to support Desert Storm. These NL munitions have been urgently fielded to U.S. Support Group-Haiti for Operation Restore Democracy, to Task Force Eagle in Operations Joint Guard, Joint Endeavor in Bosnia, and to Task Force Falcon in Kosovo, as well as on many occasions to locations within the Continental United States (CONUS) as assets urgently needed for pre-deployment readiness training.

The U.S. Army was able to rapidly respond to these real-world, urgent requirements because of its proactive approach to explore, prepare, and provide new capabilities associated with the post-Cold War era’s increasing incidence of Stability and Support Operations. The U.S. Army was initially able to urgently provide these Non-Lethal capabilities before any formal Operational

³ Program background provided by the U.S. Army NLW Program Office, Program Manager for Mines Countermines and Demolitions (PM-MCD), Picatinny New Jersey.

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Requirements were generated. Subsequently, a contingency stockpile of NL munitions was created to increase asset availability on an emergency basis, and to provide rapidly responsive fielding until standard munitions could be developed and fielded through formal Product Manager programs.

The requirements derived from the continual Urgent Need Requests (UNR) for materiel and training from CINCs since 1994 to support U.S. military operations in urban environments combined with the need to face an expanded array of threats around the world have led to the establishment of an Army Non Lethal Capabilities Set (NLCS). The NLCS comprises four categories of items: Protective Equipment, Weapons and Munitions, Communication Enhancement and Other Devices, and Training Devices/Allocations. The primary focus of the NLCS components is on counter-personnel capabilities, area denial, and deterrent capabilities (for personnel and vehicles). The NLCS components are ideally suited for use against noncombatants, whose presence or acts jeopardize a unit's ability to accomplish its assigned mission. Typical examples of this are the use of noncombatants as human shields by combatants, or when noncombatants themselves become a threat. NL components in the NLCS enable soldiers to engage these forces with the reasonable expectation of minimizing serious noncombatant casualties.

In July 1999, The Office of the Project Manager for Mines, Countermines and Demolitions (OPM-MCD) was assigned the mission for the Army NLCS. The Army will field 5 NLCSs per year from FY00 through FY05.

The NLCS is specifically designed to support Army units in ground operations where NL capability does not exist. Future involvement in peacekeeping, peace enforcement, humanitarian assistance, and homeland security missions support demand for U.S. Forces to retain non-lethal capabilities. The expected range of missions requires a full and flexible package of items aggregated into the NLCS. Non-lethal capabilities enhance force protection and security operations by providing the commander with graduated response options. Uses of the NLCS include, but are not limited to, crowd control, hostage situations, and the clearing of facilities. The NLCS is applicable to domestic and international operating environments.

The Non-Lethal capabilities provide commanders with 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 Army's pro-active anticipation of User needs, and the ability to urgently field required materiel capabilities has led to having the lead role within NATO to comply with a Defense Capability Initiative to provide NATO with Non-Lethal capabilities by 2005.

The Army's NLCS is a continually evolving entity. As NL capabilities or items that are suitable for inclusion in the NLCS become available through development efforts and/or thru commercial-off-the-shelf enhancements, the versatility and capabilities of the NLCS will be augmented.

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United States Marine Corps Non-Lethal Weapons Program

The Marine Corps Non-Lethal Weapons program is headquartered at Marine Corps Base, Quantico, Virginia not far from the Joint Non-Lethal Weapons Directorate (JNLWD). The program is managed by the Marine Corps Combat Development Center (MCCDC), and their materiel developer is located at Marine Corps Systems Command (MCSC). In 1997, the Marine Corps became the first Service to provide a NL capability to the field by responding to an urgent need from field commanders. The Marines rapidly screened, tested, and selected approximately 47 items to be fielded within their original 14 Non-Lethal Weapons Capability Sets (NLCS). Items within each Marine set are divided into four distinct categories: personnel protectors, personnel effectors, mission enhancers, and training devices. Each set is configured to provide a 200-man unit with enough NL equipment for training and deployment. Since 1997, Marine Corps Expeditionary Units (MEU) have trained and deployed with a NL capability to locations around the world.

Improving on their initial success, the Marine Corps continued to pursue additional NL capabilities while refining and re-equipping its original NLCS equipment. Improved range munitions, target effects studies, and requirements refinement have all led to the improvement of the Marines capability to deploy NLWs. Training also became a top priority for the Marine Corps and resulted in the formation of their Non-Lethal Weapons Instructors Course (NIWIC) currently located at Ft. Leonard Wood, Missouri. Designed as a two-week train-the-trainer course for the Marine Corps the school now trains over 300 service members annually from all branches of the military and the Coast Guard.

The Marine program is currently spearheading the research and development of technologies that satisfy two of the JNLWP core functional areas: Clearing Facilities and Incapacitating Individuals. These ongoing efforts include such potential technologies as a Multi-Sensory Device to disabled individuals within structures and the Taser to incapacitate a single individual. Another program currently operated by the Marines is the Mobility Denial System (MDS) which may result in the fielding of a slippery foam that impedes the movement of both foot and vehicle traffic. As of 2002, the Marine Corps has fielded 35 NLCS world-wide to bases and forward deployed forces. The Marine Corps continues to expand its NLW capability through continuing analysis of critical mission areas and selected research and development programs.

United States Navy Non-Lethal Weapons Program

The U. S., Navy's Non-Lethal Weapons program is headquartered at OPNAV N75 within the Pentagon. OPNAV N75 is the USN's flag representative to the Joint Non-Lethal Weapons Program (JNLWP) and facilitator within the USN for NLW requirements and resource development. The Navy's near term NL goal is to field USN specific (afloat and ashore) non-lethal weapons capability sets to the fleet. The programs long-term mission of is to fully integrate non-lethal weapons technology into weapons systems and platforms on shore and afloat throughout the Navy. The Navy is currently experimenting with various NL technologies designed to deny area to small crafts and improve shipboard force protection options.

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United States Air Force Non-Lethal Weapons Program⁴

The Air Force (AF) NLW program is currently managed by the Office of the Director of Security Forces (USAF/XOF). XOF delegated the day-to-day management of the program to Headquarters AF Security Forces Center (AFSFC), Operations Division (SFO) at Lackland AFB, Texas in San Antonio. The AFSFC/SFO is the focal point for the requirements process for the security forces (law enforcement/force protection) career field. SFO hosts semi-annual requirements workshop, annual equipment workshops, and maintains membership on DoD panels e.g., Physical Equipment Security Action Group, Technical Support Working Group, Commercial Off the Shelf Working Group, etc. SFO is also the work center for the AF Joint NLW Joint Coordination and Integration Group voting principle, the Central Action Officer, and the Program Support Officer.

The AF NLW program is still relatively unique in comparison to that of the U.S. Army and the Marine Corps. In the past the program had very tactical roots, which were primarily tied to the technology and systems being used and developed. SFO has started making strides in creating a collaborative AF team effort, which would include operational and strategic functions. In building a solid foundation for the program, SFO formed the first ever AF NLW Integrated Concept Team that brought together all functional areas to determine AF requirements. A Concept of Operations has also been developed for NLW Capabilities that is envisioned to be used as the document to bridge current and future applications of NLW.

Near term projects for SFO are the development and fielding of a NL Capability Set (NLCS) and a mini fly-away set for AF Raven teams and aircrews. The NLCS is designed for use by an AF security forces (SF) element, which is the basic module for employment for SF engagements. The basic NLCS will complement a 13-person team with munitions, protective gear, and training equipment. SFO is seeking AF approval for the use of NL munitions for use in all NLCS. Recently Raven SF members have also been armed with tasers (M26) in support of detainee transport for Operation Enduring Freedom. Ravens are SF teams, usually consisting of two to four members that provided security for AF assets, which land in areas where there are no U.S. security elements present. The Raven fly-away kits will consist of munitions and a possible a firing platform.

Long term plans includes the use of directed energy e.g., microwaves and pulsed plasma systems. AF is currently the lead service for an Office of the Secretary of Defense (OSD) funded program that will produce a one millimeter wave system. The system will be used by all services to determine service utility and possible procurement strategies. This Active Denial System (ADS) is scheduled for field by FY04. The AF is looking at several possible platforms ranging from vehicle mounted for tactical employment, airborne mounted for operations missions, to fixed site platforms for force protection applications. SFO is an active team member of the OSD ADS program and is currently assisting with the development of an ADS Concept Of Operations for joint application.

⁴ Program background provided by the Office of the Director of Security Forces, U.S. Air Force, Lackland AFB, San Antonio, Texas

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United States Special Operations Command Nonlethal Weapons Program⁵

The Special Operations Force (SOF) soldier operates across the operational continuum from peacetime competition through conflict and war. The high potential for low intensity conflict (LIC) and operations other than war (OOTW) requires that SOF systems be capable of effective and sustained operations in all environments under restrictive rules of engagement (ROE). Although no SOF – specific requirements have been identified (i.e. required systems which already exist or are being developed by other agencies), NL/limited effects weapon capabilities are required to provide SOF with the ability to influence the action of adversaries without resorting to lethal/destructive force. They will provide an intermediate choice between doing nothing and responding with conventional weaponry. NL/disabling weapon capabilities will minimize the potential for collateral damage to personnel and equipment. Man-portable, small vehicle (wheeled, tracked, and boats) mounted, and large platform (aircraft, ship) mounted capabilities are required. NL/disabling weapon capabilities that can disable personnel (individually and in groups) and equipment and be used to neutralize or clear structures ranging from light construction to fortified bunkers are required.

The need for NL/limited effects weapons for these missions support the USSOCOM core and essential tasks of: Foreign Internal Defense, Conduct Coalition Support Operations, Plan and Execute Humanitarian Assistance, Execute Security Assistance Support, Provide Support to Population Security, Civil Affairs, and Plan and Execute Humanitarian Assistance. The key core task of Combating Terrorism and its supporting tasks of Conduct Personnel Security, Execute Security Assistance Support, and Conduct Preemptive Attack on Terrorist Infrastructure are also supported.

The most common threat systems encountered during LIC and OOTW (when NL/limited effects weapon capabilities most likely will be required) will be in the small arms category; however, they may include anything from controlling crowds armed with rocks and clubs up to the most modern heavy weapons systems. Therefore, the non-lethal/limited weapons effects weapon systems must not impair SOF's ability to fight as a modern lethal force. The enemy may employ a number of systems to detect SOF personnel such as radar, infrared, thermal, day/night visual enhancement, and acoustic sensors, but will most likely rely on active patrols, as well as human intelligence (HUMINT) and signal intelligence (SIGINT). Current SOF lethal weapon systems are extremely easy to detect when fired. Some non-lethal/disabling weapon systems, as a side benefit, may offer SOF the ability to attack targets in a low probability of detection (LPD) manner, minimizing the chance of compromise by enemy forces. They should also allow the ability to repel crowds without permanent disabling injuries or fatalities, which would significantly reduce the threat of further violence and potential casualties among friendly or innocent bystanders.

Continuing to operate with current weapon systems under restrictive Rules of Engagement (ROE), significantly inhibits SOF's ability to respond to threatening situations during LIC and OOTW. USSOCOM NLW projects currently in development are the Pulsed Energy Projectile (PEP). The PEP has potentially debilitating effects and represents the type of technology that USSOCOM wants to see mature into an effective non-lethal weapon.

⁵ Program background provided by SOAL-T, USSOCOM, HQ, Tampa, Florida.

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United States Coast Guard Non-Lethal Weapons Program⁶

Identification and fielding of non-lethal capabilities in support of various law enforcement and national defense missions is an important part of the Coast Guard's strategy. To meet this need, Commandant (G-O) assembled an ad-hoc group in 1999 from headquarters and area staffs, as well as members from the Coast Guard Research and Development Center (RDC) to form Project Erickson. Project Erickson's mission is to identify and provide a relevant and credible continuum of non-lethal capabilities for the Coast Guard, as well as developing employment doctrine and policy for the use of such capabilities. Since its establishment, a number of non-lethal capabilities have already been identified and fielded for use, including 12 gauge fin-stabilized projectile rounds, 12 gauge stingball rounds, OC pepperball guns, and manually deployed entanglement nets.

Other non-lethal capabilities are presently being developed and tested for general Coast Guard use, and may eventually become part of a standard toolset of non-lethal capabilities for Coast Guard units, including 12 gauge OC pepper rounds, 12 gauge engine disabler rounds, compressed air launched entanglement nets for surface and air units, canister deployed entanglement nets for air units, and speed inhibitors for small boats. To further assist in development of Coast Guard non-lethal capabilities, Project Erickson, is working with the Joint Non Lethal Weapons Directorate (JNLWD), which is a joint service program chaired by the U. S. Marine Corps. Among the work being done with the JNLWD is investigation into the operational utility of directed energy non-lethal weapons, and concept exploration in the area of incapacitation of personnel, maritime area denial, clearing facilities, crowd control, and area denial to personnel and vehicles.

The need for non-lethal capabilities continues to expand rapidly, encompassing a wide variety of threats, including migrant interdiction, drug interdiction, homeland security, and fisheries enforcement. Project Erickson has established a formal process to ensure a systematic approach that focuses limited resources on the right priorities to meet emergent threats with appropriate risk management considerations.

Commandant (G-O) is responsible for authorizing non-lethal technology to meet requirements identified through threat assessments and operational commanders' input. Validated requirements will be prioritized and all capability development will be coordinated to ensure only legally sound and viable capability options are pursued. If the validated requirement can be met with existing Coast Guard capabilities, employment doctrine will be developed and supported by appropriate Operational Testing and Evaluation (OT&E) results, and will also include training and qualification standards and an acquisition and support plan. If new requirements cannot be met with existing organic capabilities, we will look to the JNLWD, civilian law enforcement agencies, and in some cases to international sources to meet the requirement.

When a capability is identified, a series of evaluations will be conducted to determine if it can be adapted for use by the Coast Guard. If OT&E results are favorable, employment doctrine supported by those results will be developed which will also include training and qualification standards and an acquisition and support plan. If no capability exists to meet the requirement,

⁶ Program background provided by the U.S. Coast Guard.

DoD Non-Lethal Weapons Equipment Review

development efforts will be pursued through liaison with RDC, the JNLWD, and civilian law enforcement agencies. A review will be conducted to ensure that the proposed capability meets the operational requirement, that the new capability fits into the use of force continuum, that policy to support its use is in place, and to ensure that an appropriate legal review has been conducted. When the development of new capabilities is complete, an employment proposal will be initiated. Following approval of non-lethal capabilities, allowances will be established and operational commanders advised.

Civil Law Enforcement Less-than-Lethal Weapons

Today's 21st century law enforcement officer faces many of the same challenges and issues his predecessors struggled with during the late 20th century. Incidents of hostage rescue, vehicle pursuit, attempted suicide, detaining or controlling unruly individuals and crowds, and domestic disturbance continue to dominate daily activities. The good news is that during the past several decades, advances in technology have matured and tactics developed that provide law enforcement officers additional options in dealing with many of these situations. One aspect of civil law enforcement that continues to be difficult to handle is dealing with individuals and groups where more than a show of force or voice commands is required and deadly force is not authorized or the preferred method of resolution. To fill this gap many Federal and State agencies, and local law enforcement departments have turned to the development and use of Less-Than-Lethal (LTL) technology.

The development and use of LTL weapons and equipment by civil law enforcement officers contributes daily to their ability to engage hostile acts or project force at a lower "less-lethal" response level. In the context of civil law enforcement, "Less-Than-Lethal" weapons refer to weapons primarily designed to temporarily disable or stop suspects without killing, thereby providing law enforcement and corrections personnel an alternative to lethal force where appropriate. These weapons are less lethal in the literal sense because none can be guaranteed to avoid serious injury or death. As in the military, LTL weapons should never be considered a replacement for the legal use of lethal force; rather, law enforcement officers should use LTL weapons as an instrument of force continuum between show of force or verbal commands and deadly- force.

As briefly presented in Appendix C, LTL weapons range from kinetic impact munitions, OC pepper spray and CS, electronic stun devices, and vehicle disabling technologies. Many of these technologies have contributed to ending potentially lethal use of force situations through the early intervention of LTL systems. Though by no means extensive, the brief sampling of LTL equipment provided by the U.S. Marshals Service, Los Angeles County Sheriff's Department, Seattle SWAT, Chicago Police Department, Washington, DC Metropolitan Police Department, and the Philadelphia SWAT, represents similar technologies to those the DoD pursues. These LTL technologies constitute a continuing effort by civil law enforcement to protect and preserve lives; even the lives of those individuals attempting to harm them or other citizens.

Summary

Events of the last quarter century, including the fall of the former Soviet Union in the mid-1980s, the success of Operation Desert Shield/Desert Storm in the early 1990s, and operations in places like Panama, Haiti, and Bosnia, have created a new operational environment where few adversaries are willing to openly threaten or engage the United States or its allies through conventional warfare. Today's operational environment requires our military to conduct numerous small-scale operations generally in urban environments, containing high-concentrations of non-combatants and critical infrastructure.

The introduction and use of Non-Lethal Weapons (NLWs) within the DoD is designed to provide field commanders with additional capabilities that augment, but do not replace the U.S. military's highly lethal force. NLWs act as force multipliers enabling U.S. forces to discourage, delay or prevent hostile action, limit escalation where lethal force is not the preferred option, protect our forces, and temporarily disable equipment and facilities. The Department of Defense Directive 3000.3, "Policy for Non-Lethal Weapons," dated 9 July 1996 defines NLWs as, "...explicitly designed and primarily employed so as to incapacitate personnel and materiel while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment."

The Joint Non-Lethal Weapons Program (JNLWP), in conjunction with the four branches of military services and the Coast Guard have defined requirements, conducted research and technology development, and successfully fielded initial "first generation" NL capabilities to the user. NL technologies have already proven highly effective, as witnessed by the U.S. Army's success during engagements in Kosovo and Bosnia in 2000. While initially focusing on short-range kinetic impact devices that provide additional stand-off capability and force protection options, the DoD is moving forward and advancing the technology beyond the rubber bullet modality.

In addition to the U.S. Military, many Federal, State, and local civil law enforcement organizations have, since the late 1980's, incorporated the use of NL or Less-than-Lethal (LTL) technology into their daily effort to reduce the loss of life and prevent unnecessary damage to property. Through training, skillful deployment, and a growing experience with the use of LTL technology, civil law enforcement agencies and departments have quelled prison riots, suppressed unruly mobs, neutralized hostile individuals, and prevented the unnecessary loss of life. Today both military and civil law enforcement organizations continue to partner in the development and training of NL/LTL technologies. As witnessed by September 11, 2001, the operational environment continues to change and the United States continues to face new and complex threats that impact the safety and security of our national security.

This document has attempted to provide a brief look at the DoD NLW program and offer a consolidated review of currently available DoD NLW technologies. For balance, this document has provided an overview and representative sampling of LTL technologies for civil law enforcement. Through this review it is hoped that civil law enforcement organizations will gain a greater understanding of the DoD NLW program and its fielded NL technologies.

DoD Non-Lethal Weapons and Equipment Review

Appendix A

DEPARTMENT OF DEFENSE NON-LETHAL WEAPONS AND EQUIPMENT

The following equipment list does not constitute an endorsement by the Department of Justice or the National Institute of Justice and should not be considered by civil law enforcement agencies as an endorsement for their purchase or use.

Prices provided within this section reflect 2001-2002 approximate retail value based on market research. Prices are not necessarily reflective given market fluctuations and special price incentives for quantity or frequent purchases. Individual prices may vary.

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Army Non-Lethal Weapons and Equipment

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Non-Ballistic Body Shield #1, #2	66 mm Riot Control Grenade L96A166 mm
Armadillo Riot Shield	Riot Control Training Grenade
Paulson Riot Shield	Modular Crowd Control Munition
Portable Vehicle Arresting Barrier	
Non-Ballistic Riot Shin Guards	
Ballistic Face Shield	
Ballistic Body Shield w/Light Kit	
Ballistic Riot Shin Guards	
Wooden Baton	
Portable Bullhorn	
Ground Mounted Bullhorn	
Individual Voice Amplification System	
High Intensity Light	
Individual High Intensity Light w/Carry Pouch	
Individual High Intensity Light Accessory Kit	
Batteries	
Disposable Restraint System #1	
-NIK Public Safety	
Individual Riot Control Agent Dispenser w/Carry Pouch #1	
-ACALA M36	
Inert Riot Control Agent Dispenser	
Mid Sized Riot Control Agent Dispenser #1	
-Defense Technology M37	
Squad Riot Control Agent Dispenser	
Refill Unit Riot Control Agent (Live)	
12 Gauge Shotgun w/High Intensity Light Kit	
12 Gauge Gunstock Carrier	
12 Gauge Utility Pouch	
Diversionsary/Rubber Ball Grenade Pouch	
Caltrops	
Riot Training Suit	
12 Gauge Dummy Round	
12 Gauge Point Round	
12 Gauge Area Round	
12 Gauge Diversionsary/Flash Bang Round	
40 mm Sponge Point Grenade	
5.56 Point Round	
5.56 Area Round	
Diversionsary Flash Bang Stun Hand Grenade	
Light Vehicle Smoke Obscurant System	
66 mm (LVOSS) Canister Rubber Ball	

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Marine Corps Non-Lethal Weapons and Equipment

Non-Ballistic Face Shield
Non-Ballistic Body Shield #2
-Paulson
Non-Ballistic Riot Shin Guards
Expandable Baton
Portable Bullhorn
High Intensity Light
Individual High Intensity Light w/Carry Pouch
Individual High Intensity Light Accessory Kit
Batteries
Disposable Restraint System #2
-Mondadnock
Individual Riot Control Agent Dispenser w/Carry Pouch #2
-Defense Technology MK-4
Inert Riot Control Agent Dispenser
Mid-Sized Riot Control Agent Dispenser #2
-Defense Technology MK-9
High Volume Output, High Capacity OC Dispenser
Refill Unit Riot Control Agent (Live)
12 Gauge Shotgun
12 Gauge Gunstock Carrier
12 Gauge Launching Cup
12 Gauge Utility Pouch
40 mm Carry Pouch
Diversionary/Rubber Ball Grenade Pouch
Caltrops
Road Side Spike Strip
Riot Training Suit
12 Gauge Dummy Round
12 Gauge Launching Cup Cartridge
12 Gauge Bean Bag Round
40 mm Foam Rubber Baton Round
Rubber Ball Grenade
Inert Rubber Ball Grenade
Light Vehicle Smoke Obscurant System
66 mm (LVOSS) Canister Rubber Ball
66 mm (LVOSS) Diversionary/Flash Bang

DoD Non-Lethal Weapons and Equipment Review

Navy Non-Lethal Weapons and Equipment

Non-Ballistic Face Shield
12 Gauge Point Round
12 Gauge Bean Bag Round
40 mm Area Round
Rubber Ball Grenade

Air Force Non-Lethal Weapons and Equipment

Non-Ballistic Face Shield
Non-Ballistic Body Shield #1
Non-Ballistic Riot Shin Guards
Wooden Baton
Portable Bullhorn
Disposable Restraint System #1 and #2
Individual Riot Control Agent Dispenser #1
12 Gauge Gunstock Carrier
12 Gauge Utility Pouch
40 mm Carry Pouch
Riot Training Suit w/Accessories
Riot Training Bag
12 Gauge Point Round
12 Gauge Area Round
12 Gauge Diversionary/Flash-Bang Round
40 mm Area Round
40 mm Sponge Point Grenade
Rubber Ball Grenade
Dissuader Laser Illuminator



Non-Ballistic Face Shield

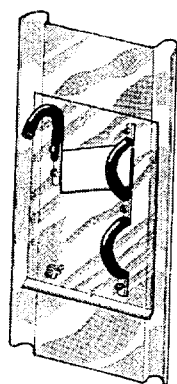
Manufacturer: Paulson

Approximate Cost: \$ 29.50 (4mm)
\$49.00 (6mm w/anti-scratch and anti-fog coating)

Participating Services: Army, Marines, Navy, Air Force, and Coast Guard

Description: Paulson Riot Face Shields are made with high quality Lexan plastic. Distinctive features include a top rubber seal to prevent seepage of liquids onto the users face, and a pivot lock mechanism allows for ambidextrous single hand operation. The face shield locks up and down, stays in place, and provides extra clearance for use over a gas mask. Mounts quickly without tools and fits US standard Kevlar helmets. The major differences between the USA/USMC face shield is the added cost, increased thickness, and use of scratch resistant coating used by the Army.

Operational Capability/Use: The Non-Ballistic Face Shield provides the Warfighter with face protection from a wide range of threats (e.g., debris, liquids, hand thrown objects, etc.).



Non-Ballistic Body Shield

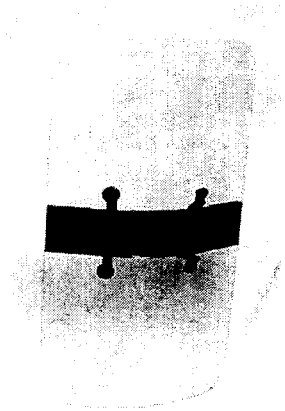
Manufacturer: Armadillo

Approximate Cost: \$ 246.00

Participating Services: Army, Air Force

Description: The Armadillo interlocking riot shield is 22" X 48" and (6mm) thick. The shield is made of Lexan polycarbonate with an additional (3mm) clear rear panel.

Operational Capability/Use: Armadillo Riot Shields come in many sizes and provide a unique interlocking capability with a lower handle that provides for greater control and maneuverability against riotous crowds. The shield provides protection from a wide range of threats (e.g., debris, liquids, hand thrown objects, etc.).



Non-Ballistic Body Shield

Manufacturer: Paulson

Approximate Cost: \$88.50

Participating Services: Army, Marines

Description: The Paulson Polyguard Riot Shield is constructed of optical grade, transparent, virgin polycarbonate that will withstand high impact. The shield is 24"X48" and (6mm) thick and provides for an ambidextrous grip with sufficient padding to protect the forearm from impact shock.

Operational Capability/Use: The Paulson riot shield provides the Warfighter with body protection from a wide range of threats (e.g., debris, liquids, hand thrown objects, etc.). The shield comes in various widths, lengths, and thicknesses.



Non-Ballistic Riot Shin Guards

Manufacturer: Champro Sports Equipment

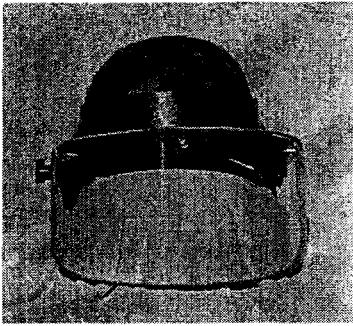
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$60.00 each (pair)

Participating Services: Army, Marines, Air Force

Description: Shin Guards for Riot Control provide the Warfighter with leg protection from a wide range of threats (e.g., debris, liquids, hand thrown objects, etc.). The guards are manufactured from hard plastic and weigh 2 lbs. (.9 kg) each.

Operational Capability/Use: Champro shin guards provide protection to the legs of riot control forces and are built of high impact polyethylene that features double knee protection, calf and ankle wings, a double reinforced knee, and full length padded liner.



Ballistic Face Shield

Manufacturer: Protech Armor Products

Vendor: Aardvark Tactical Inc.

Approximate Cost: \$246.00 each (with cleaning kit)

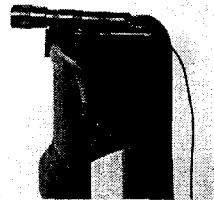
Participating Services: Army

Description: The shield is manufactured from acrylic and bullet resistant materials to provide level IIIA protection (9 mm & .44 Magnum pistol rounds), weighs 3.4 lbs. and is compatible with the PASGT Helmet and M-17/M-40 gas masks.

Operational Capability/Use: Protech's ballistic face shield features full facial protection for threats up to a 124 grain 9mm round. Shield weight is approximately 2.5 pounds. Face shield mounts quickly and easily to standard U.S. Kevlar helmets.



**Shield Light
Mounted on
Ballistic Shield**



Ballistic Body Shield with Light Kit

Manufacturer: Protech Armor Products
(Shield) Sure Fire lights (Light Kit)

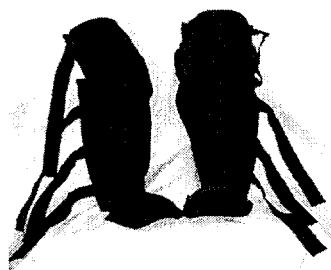
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$1,052.00 each (Shield)
\$ 185.82 each (Light Kit)

Participating Services: Army

Description: The shield is manufactured from Spectra Shield bullet resistant material to provide Level IIIA protection (9 mm & .44 Magnum pistol rounds), weighs 18 lbs. and is 20" x 36" in size with a view port of 4" x 16". The Light Kit requires 2 x 3v lithium batteries.

Operational Capability/Use: Protech Armored Shields are designed with a ballistic Spectra composite blanket covered by a projectile absorbing lightweight metal alloy skin. Protech shields are equipped with an ambidextrous handle and harness assembly with quick release feature. All shields are equipped with standoff straps to prevent body contact with the backface of the shield and feature a ballistic viewport.



Ballistic Riot Shin Guards

Manufacturer: Protective Materials Co.

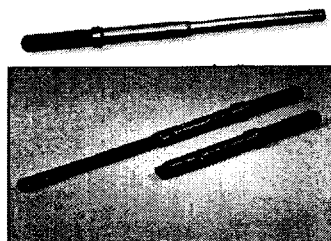
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$440.00 each (pair)

Participating Services: Army

Description: The guards are manufactured from Kevlar KM2 and provide Level IIIA protection (9mm and .44 magnum pistol rounds). They are available in three sizes. Weight varies from 7 to 10 lbs. per pair.

Operational Capability/Use: Riot shin guards provide individual with improved protection from thrown objects. The shin guards are lightweight and standard black in color. The ballistic shin guard provides protection against small arms fire up to 9mm FMJ (124 grain bullet at 1,400 FPS). It is primarily used by Special Reaction Teams (SRTs) in forced entry scenarios and for selected MOUT operations.



Expandable Baton

Manufacturer: Monadnock

Vendor: Aardvark Tactical Inc.

Approximate Cost: \$73.25

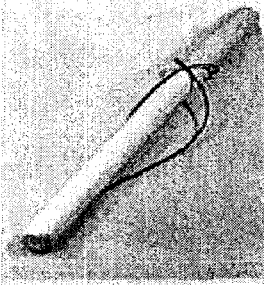
Participating Services: Marines

Description: Riot Control version, Weight < 35 ounces, length between 23 and 36 in.

- Durable and shock resistant, black in color
- Capable of being used by both right and left hand
- Handle 1.25 in. in diameter
- Mounting device to attach to MP Ensemble pistol belt
- Non-slip type surface handle

Operational Capability/Use: Baton used for fast defense and to hold off crowds in different conflict situations. A practice riot baton is currently being configured/manufactured to meet the same dimensions of the expandable riot baton. Once the practice riot baton is available it will be added to the USMC capability set.

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Wooden Baton

Manufacturer: Government Issue

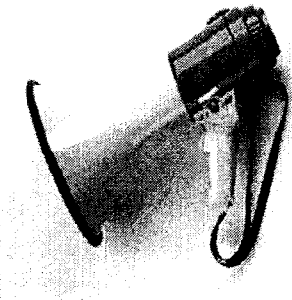
Vendor: U.S. Army

Approximate Cost: \$15.50

Participating Services: Army, Air Force

Description: The 36" Wooden Baton is made of solid hickory with standard leather carrying strap.

Operational Capability/Use: Baton used for fast defense and to hold off crowds in different conflict situations.



Portable Bullhorn

Manufacturer: Able 2

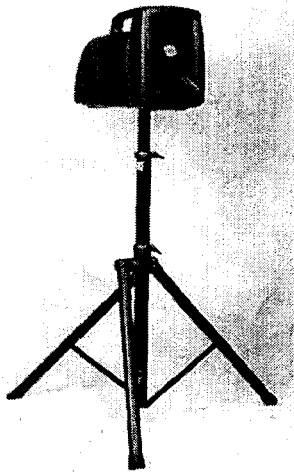
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$82.00 each

Participating Services: Army, Marines, Air Force

Description: The acoustic range of the megaphone is 3/4 mile to one full mile while still retaining clear voice output. The power output of the megaphone is rated at 15 watts with a maximum rating of 20 watts. Dimensions of the megaphone are: 14.5" long with a 9" diameter bell and it weighs 3.5 pounds without batteries. Battery requirements for the megaphone are eight dry cell "C" batteries.

Operational Capability/Use: A critical communication enhancement device for conducting crowd control tactics. The bullhorn facilitates communication with crowds and assists in communication of commands to troops engaged in crowd control by projecting over crowd noise.



Ground Mounted Bullhorn

Manufacturer: Anchor Audio

Vendor: Aardvark Tactical Inc.

Approximate Cost: \$815.00 each

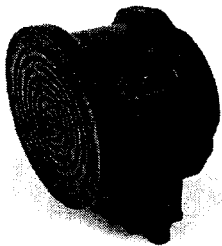
Participating Services: Army



Description: The power output of the Ground Mounted Bullhorn is rated at 22 watts. The dimensions are 13.75" x 9" x 14.75" and it weighs 15 lbs. It comes complete with stand and wireless microphone. The Bullhorn contains a 12v rechargeable sealed lead acid battery. The wireless microphone requires 1 AA battery.

Operational Capability/Use: A critical communication enhancement device for conducting crowd control tactics. The bullhorn facilitates communication with crowds and assists in communication of commands to troops engaged in crowd control by projecting over crowd noise.

Individual Voice Amplification System (M7)



Manufacturer: AudioPack Sound Systems

Vendor: Defense Logistic Agency

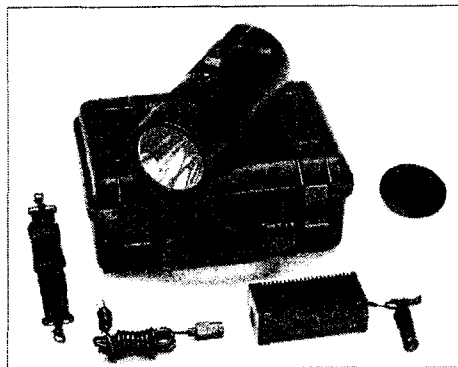
Approximate Cost: \$65.42 each

Participating Services: Army



Description: The M7 is fitted to the M40 protective mask to facilitate oral communication and increase the user's ability to communicate using radios and other devices. It requires a 9v battery.

Operational Capability/Use: A critical communication enhancement device for conducting crowd control tactics using Riot Control Agents while wearing a protective mask. This device facilitates oral communications and increases the user's ability to communicate using radios and other devices.



High Intensity Light

Manufacturer: Xenonics

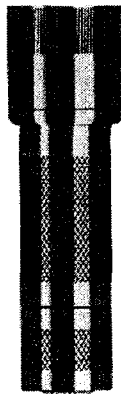
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$2,795.00

Participating Services: Army, Marines

Description: The High-Intensity Light is intended for use in low light or night conditions. The High-Intensity Light can project a beam that will enable the user to identify an individual person up to 1900 yards. It has an adjustable beam spread of 1 to 15 degrees and will run continuously at maximum power for up to 45 minutes. The internal power supply is a Thinline sealed lead battery and requires 4 hrs for a full charge.

Operational Capability/Use: Provides long-range high-intensity illumination during reduced light conditions. Readily adapted to a variety of uses and platforms, from dismounted to vehicles, boats, and helicopters or fixed mounted, with its internal rechargeable battery, or without, from any 12-32 VDC power source.



Individual High Intensity Light with Carry Pouch

Manufacturer: Sure Fire (Light)
Eagle Industries (Pouch)

Vendor: Aardvark Tactical Inc.

Approximate Cost: \$40.47 each (Light)
\$ 8.75 each (Pouch)

Participating Services: Army, Marines



Description: Individual High Intensity Xenon Searchlight is primarily used for illumination in crowd control operations at night. It requires 2, 3v lithium batteries.

Operational Capability/Use: Compact, lightweight and convenient to carry in a pocket, pouch or purse, instantly accessible for routine or emergency situations.

P60 lamp is
marked by a
BLUE band



Individual High Intensity Light Accessory Kit

Manufacturer: Sure Fire
Vendor: Aardvark Tactical Inc.
Approximate Cost: \$11.97

Participating Services: Army, Marines

Description: Replacement lamp for Individual High Intensity Light, Shield Light and Shotgun Light.

Operational Capability/Use: Replacement



Batteries

Manufacturer: Duracell, Rayovac, Ultra Light
Vendor: Commercially available
Approximate Cost: \$1.00 each C cell
2.85 each Lithium
.75 each AA

Participating Services: Army, Marines

Description: Batteries for the Flashlights, High Intensity Lights, Shields, Shotgun Lights, Bullhorn, Individual Voice Amplification Device and Public Address Systems.

Operational Capability/Use: Replacement



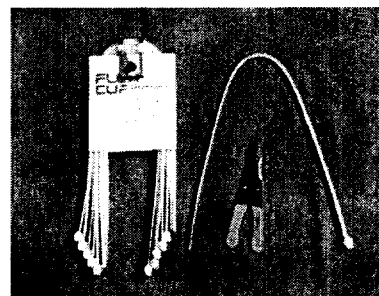
Disposable Restraint System

Manufacturer: NIK Public Safety, Inc.

Vendor: Aardvark Tactical Inc.

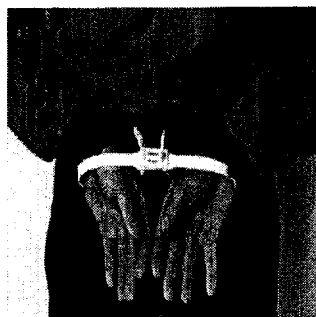
Approximate Cost: .70 each
(\$70.00 per set)

Participating Services: Army
Air Force



Description: A plastic band with a self-locking mechanism at one end. When threaded, the restraint band circles around the wrist or ankles impeding and securing the individual. The device is lightweight, disposable and requires a cutting tool or other instrument to remove the device. These cuffs are offered in both black and white.

Operational Capability/Use: Large numbers of disposable restraints can be carried by individual soldiers and used to immobilize individuals.



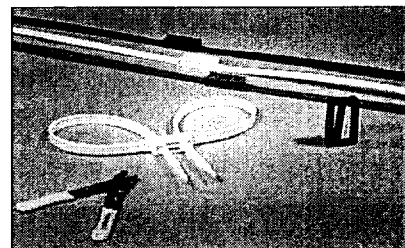
Disposable Restraint System

Manufacturer: Monadnock

Vendor: Aardvark Tactical Inc.

Approximate Cost: .94 each

Participating Services: Marines, Air Force



Description: The Monadnock Double-Cuffs come in three different models: black, white (writable), red (reusable /training). These cuffs have a tensile strength of 250 lbs. and feature two ½ inch-wide plastic straps that allow for standard handcuffing techniques.

Operational Capability/Use: Large numbers of these disposable restraints can be carried by individual soldiers and used to immobilize individuals.



Individual Riot Control Agent Dispenser/Carry Pouch

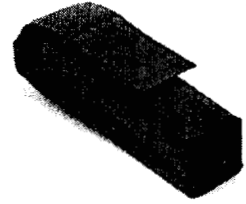
Manufacturer: ACALA (M36)

Eagle Industries (Pouch)

Vendor: Aardvark Tactical Inc.

Approximate Cost: \$12.67 each (M36)

\$6.75 each (Pouch)



Participating Services: Army

Description: The M36 Individual Riot Control Agent Dispenser contains CR solution. It can deliver 25 one-second bursts out to 12 feet.

Operational Capability/Use: These individual riot control agent dispensers are intended primarily for self defense or to keep rioters out of arms reach of soldiers conducting crowd control tactics or engaged in missions where a non-combatant threat exists.



Individual Riot Control Agent Dispenser/Carry Pouch

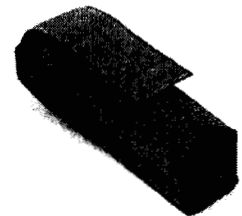
Manufacturer: Defense Technology Corp. (MK-4)

Eagle Industries (Pouch)

Vendor: Aardvark Tactical Inc.

Approximate Cost: \$7.29 each (MK-4 Dispenser)

\$6.75 each (Pouch)



Participating Services: Marines, Air Force

Description: The MK-4 contains an all-natural water based irritant formula consisting of Oleoresin Capsicum (Pepper Spray). It can deliver 20 one-second bursts out to 15 feet.

Operational Capability/Use: These individual riot control agent dispensers are intended primarily for self-defense or to keep rioters out of arms reach of soldiers conducting crowd control tactics or engaged in missions where a noncombatant threat exists.



Inert Individual Riot Control Agent Dispenser

Manufacturer: Defense Technology Corp. (MK-4)
Eagle Industries (Pouch)

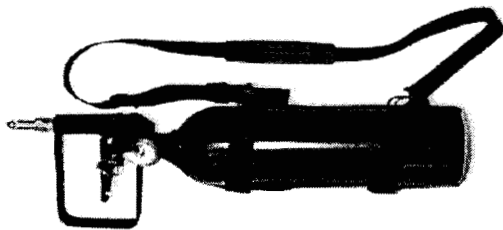
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$6.07 each (MK-4 Dispenser)
\$6.75 each (Pouch)

Participating Services: Army, Marines,

Description: Inert Individual Training Riot Control Agent Dispenser. This item is used for familiarization and training purposes. It simulates tactical use and is marked appropriately.

Operational Capability/Use: Training only.



Mid-Sized Riot Control Agent Dispenser

Manufacturer: Defense Technology Corp.

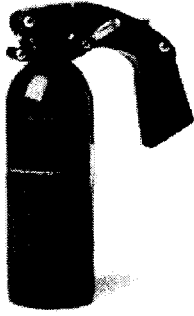
Vendor: SBCCOM

Approximate Cost: \$338.00 each

Participating Services: Army

Description: The M37, Mid Sized Riot Control Agent Dispenser is primarily employed by formations conducting crowd control tactics. It can deliver 18, 3 second bursts out to 29 feet.

Operational Capability/Use: Intended for employment by formations conducting crowd control and law enforcement operations. It is lightweight, operated by one individual, and easily refilled/pressurized with available maintenance equipment. Provides small unit self-defense capabilities from large crowds, and provides an offensive capability to clear crowds from critical areas.



Mid-Sized Riot Control Agent Dispenser

Manufacturer: Defense Technology Corp.

Vendor: Aardvark Tactical Inc.

Approximate Cost: \$ 26.20 Live OC
\$20.10 Inert

Participating Services: Marines

Description: The MK-9 OC mid-size dispenser comes in both live OC and inert red dye. The MK-9 Team OC Dispenser has a greater range and capacity than the nominal aerosol units supplied for individual use. The containers are identical with the exception of identification markings.

Operational Capabilities/Use: Intended for employment by formations conducting crowd control and law enforcement operations. It is lightweight, operated by one individual, and easily refilled/pressurized with available maintenance equipment. Provides small unit self-defense capabilities from large crowds, and provides an offensive capability to clear crowds from critical areas.



High Capacity OC Dispenser

Manufacturer: Defense Technology Corp.

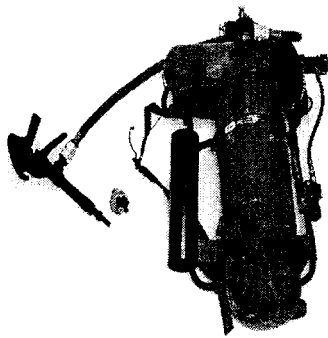
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$106.75

Participating Services: Marines

Description: The MK-46 High-Capacity/High-Output canister has a range of 25-30 feet and contains 12 one-second bursts. The device is prominently marked as to contents and is rechargeable at the unit level.

Operational Capability/Use: Designed to distribute a large quantity of formulation over a widespread area. The delivery of these products primarily affects the respiratory system.



Squad Riot Control Agent Dispenser

Manufacturer: ACALA

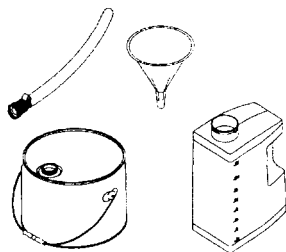
Vendor: ACALA

Approximate Cost: \$724.00

Participating Services: Army

Description: The M33A1, Squad Riot Control Agent Dispenser, is designed to provide crowd control and protection at the squad level.

Operational Capability/Use: It is capable of projecting a ballistic stream of Riot Control Agent beyond 25 feet in up to 25 half-second bursts. It can be loaded with commonly used crowd control agents and is rechargeable at the unit level.



Refill Unit Riot Control Agent (Live)

Manufacturer: Defense Technology Corp.

Vendor: ACALA

Approximate Cost: TBD

Participating Services: Army, Marines

Description: Refill Unit for Squad Riot Control Agent Dispenser (M33A1) and the Mid Sized Riot Control Agent Dispenser (M37) consists of a plastic tube to be fitted to the 3 gallon CR container, a plastic measuring container and a plastic funnel. The Refill Kit for MK-46 High Volume Output, High Capacity OC Dispenser consists of a plastic tube to be fitted to the 3 gallon OC container, a plastic measuring container and a plastic funnel.

Operational Capability/Use: Refill purposes only.



12 Gauge Shotgun with High Intensity Light Kit

Manufacturer: Mossberg (Shotgun)
Sure Fire (Light)

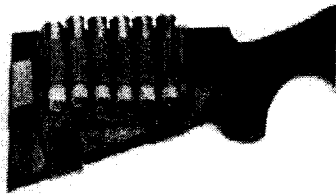
Vendor: ACALA (Shotgun)

Approximate Cost: \$235.00 (Shotgun)
139.65 (Light Kit)
(Fits Mossberg model 500 only)

Participating Services: Mossberg 500 and
Light Kit Army, Mossberg 500 only Marines,

Description: The Mossberg 12 gauge pump-action shotgun carries seven 2 ¾” shells. The shotgun is equipped with a High Intensity Light Kit that consists of a mounting bracket (fitted to exactly replace the fore end of the Mossberg model 500 shotgun) and a Sure Fire 6P xenon searchlight. Requires 2 x 3v lithium batteries.

Operational Capability/Use: The High Intensity Light is intended for use in low light or night conditions. The High Intensity Light can project a beam which will enable to user to identify an individual person up to 1900 yards.



12 Gauge Gunstock Carrier (6 Round)

Manufacturer: Eagle Industries

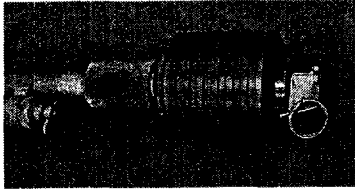
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$10.75 each

Participating Services: Army, Marines, Air Force

Description: The 12 Gauge Gunstock Carrier straps to the stock of a standard military shotgun and holds up to 6 rounds. It gives the firer the ability to carry readily available ammunition with the weapon.

Operational Capability/Use: The ready availability and quick access to additional or different rounds provided by the Gunstock is a great asset in urban or fast-paced operations.



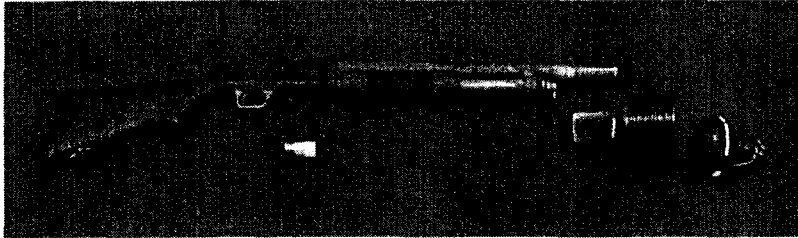
12 Gauge Launching Cup

Manufacturer: Combined Tactical System

Vendor: Combined Tactical System

Approximate Cost: \$100.00 each

Participating Services: Marines



Description: The launching cup is designed to allow the user to fire a rubber sting-ball grenade approximately 75-100 meters.

Operational Capability/Use: The 12 Gauge Launching Cup attaches to the barrel of the Mossberg by hand. Once attached, a rubber sting-ball grenade is inserted inside the cup and the safety pin is removed. The grenade is then launched with a propulsion round at an average angle of 35 degrees. The range for this weapons system is approximately 75-100 yards.

12 Gauge Utility (25 Round) Pouch



Manufacturer: Eagle Industries

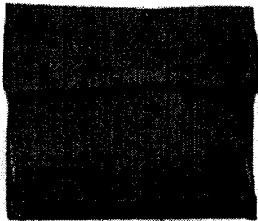
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$23.65 each

Participating Services: Army, Marines, Air Force

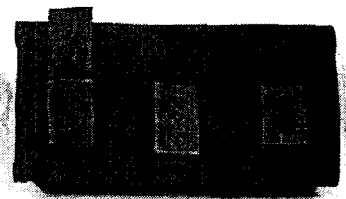
Description: The 12 Gauge Utility Pouch. This item will be used to carry 12 gauge shotgun rounds (25).

Operational Capability/Use: It is easily accessible and durable for all types of environments. It is also designed to be attached to a soldier's combat gear.



40mm Carry Pouch

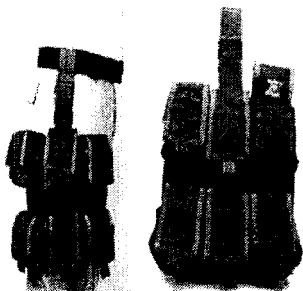
Manufacturer: Eagle Industries
Vendor: Aardvark Tactical Inc.
Approximate Cost: \$13.65 each



Participating Services: Army, Marines, Air Force

Description: Pouch used to carry 6, 40mm rounds. It is secured to the combat gear belt by means of Velcro straps.

Operational Capability/Use: The Eagle 40mm grenade pouch is specifically designed to carry all 40mm rounds in a cushioned pouch for greater safety and accessibility. It can be secured to the standard combat gear belt and the users leg.



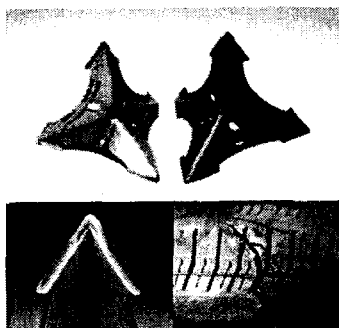
Diversionary/Rubber Ball Grenade Pouch

Manufacturer: Eagle Industries
Vendor: Aardvark Tactical Inc.
Approximate Cost: \$47.25

Participating Services: Army, Marines

Description: This pouch is designed to carry 6 rubber balls or flash grenades. It can be secured to the standard combat gear belt or the user's leg.

Operational Capability/Use: The Eagle grenade-carrying pouch can be easily mounted on either leg and attaches quickly with Velcro. The pouch can be made in either OD green or black.



Caltrops

Manufacturer: Aardvark Tactical Inc.

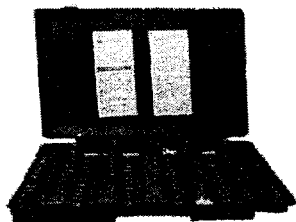
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$10.50 each

Participating Services: Army, Marines

Description: The caltrop is a tire deflation and anti-personnel device. Caltrops are designed to deflate tires or to deny access to a designated area. The caltrops are designed to deploy in an upright position no matter how they are dispensed. Caltrops are made from heavy gauge steel and powder coated to prevent corrosion.

Operational Capability/Use: These devices will be used as a vehicle barrier. They cause irreparable, immediate and catastrophic failure of pneumatic tires. "Nesting" design makes them stackable for storage. "Stringing holes" allow groups of caltrops to be joined together with 550 cord or communication wire.



Road Side Spike Strip

Manufacturer: TBD

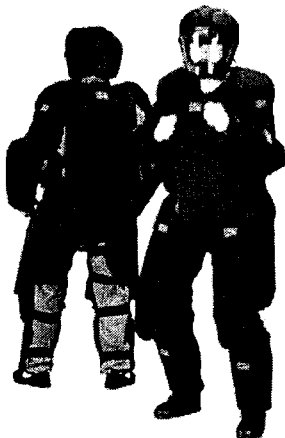
Approximate Cost: TBD

Participating Services: Marines



Description: The spike strip is designed to be easily transportable and deployable. The strips puncture pneumatic tires as the vehicle makes contact.

Operational Capability/Use: The spikes pivot into the tire and the tip-guards are pushed down. The spikes are imbedded deeply into the tire. They are pulled out of the unit and remain in the tire. On the second revolution they will be pushed directly into the tire, allowing air to escape slowly without causing a blow out or sudden loss of control. The average tire will pick up 4-6 spikes with the deflation time of about 12 to 20 seconds.



Riot Training Suit with Accessories

Manufacturer: Fist Inc.

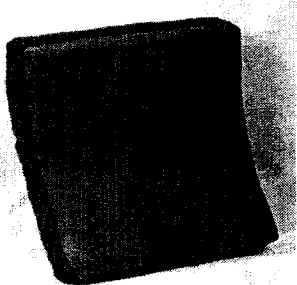
Vendor: Aardvark Tactical Inc.

Approximate Cost: \$638.50 each

Participating Services: Army, Marines, Air Force

Description: The FIST #333 Riot Training Suit is the most comprehensive Defense Tactics suit ever devised. It weighs only 15 lbs. and is capable of receiving full-force blows from real impact weapons like the Monadnock 23/36 Riot Baton. The FIST # 333 comes equipped with chest and back, shoulder, biceps, forearms, groin, buttocks, thighs, shins protection, helmet and carrying bag. The glove attachments are not provided, but should be added for greater protection.

Operational Capabilities/Use: This suit will provide full body protection to the soldier when involved in close combat training. It is designed to absorb blows inflicted by a riot baton.



Riot Training Bag

Manufacturer: Monadnock

Vendor: Aardvark Tactical Inc.

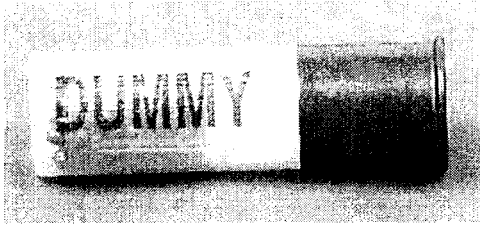
Approximate Cost: \$80.00 each

Participating Services: Army, Marines, Air Force



Description: The Monadnock Riot Training Bag is designed to meet the needs of defensive tactics instruction for unarmed strikes and baton training.

Operational Capabilities/Use: This is a Punch / Striking Bag utilized for training purposes.



12 Gauge Dummy Round

Manufacturer: Defense Technology Corp.

Vendor: USMC

Approximate Cost: \$.91

Participating Services: Army, Marines,

Description: This item will be used for familiarization and training purposes. They will simulate live rounds, but will be marked appropriately.

Operational Capabilities/Use: Uses include practice loading and unloading, cycling the weapon, and discharging expended rounds are necessary parts of familiarization training.



12 Gauge (Point) Round

Manufacturer: Defense Technology Corp.

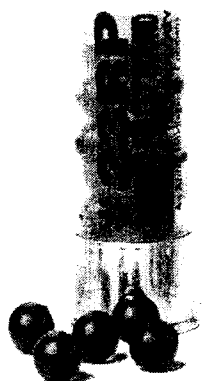
Vendor: Defense Technology Corp.

Approximate Cost: \$2.65 each

Participating Services: Army, Navy, Air Force

Description: The point target cartridge round gives the soldier a capability to stun individuals without penetrating the body by delivering a strong blow to the body. The round is designed to be fired at the center-mass of an adult subject at ranges between 10 meters and 20 meters.

Operational Capability/Use: This round was designed for single target engagement allowing escalation of force from a safe distance prior to use of lethal means. Designed as a direct fire, behavior modification round which is fired using conventional target acquisition techniques.



12 Gauge (Area) Round

Manufacturer: Defense Technology Corp.

Vendor: Defense Technology Corp.

Approximate Cost: \$2.80 each

Participating Services: Army, Air Force

Description: The 18 rubber ball projectiles weigh approximately 0.2 oz in all, and are contained in a 12-gauge shotgun shell approximately 2.5 inches in length. The round is prominently marked so as to be physically and visually identifiable during daylight and under conditions of reduced visibility.

Operational Capability/Use: The area target cartridge round gives the soldier a capability to stun/deter two to three people without penetrating the body by delivering a strong blow to the body. The round is designed to be fired at the center-mass of an adult subject at ranges between 10 meters and 20 meters. In crowd control this munition gives soldiers a multi-shot non-lethal capability to break contact or enforce a buffer zone. It provides similar capabilities to law enforcement operations.



12 Gauge (Diversionary/Flash-Bang) Round

Manufacturer: Defense Technology Corp.

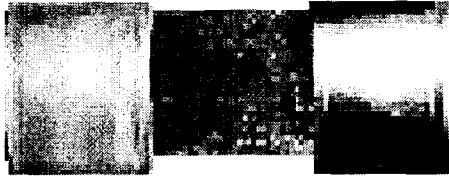
Vendor: U.S. Air Force

Approximate Cost: \$5.10 per

Participating Services: Army, Air Force

Description: The Aerial Diversionary Device Round gives the soldier a capability to distract individuals or crowds. The round is designed to be fired at ranges between 10 meters and 75 meters and placed about 5 meters above the head of the crowd. Shots fired at subjects or in enclosed areas may cause serious injury.

Operational Capability/Use: In crowd control, it can be used to provide a warning shot by delivering a flash-bang projectile over the heads of violent or potentially violent crowds. Ideally it is used in conjunction with other distraction devices and troop maneuvers.



12 Gauge Launching Cup Cartridge

Manufacturer: MK Ballistics

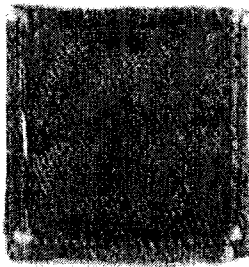
Vendor: MK Ballistics

Approximate Cost: \$ 2.16

Participating Services: Marines

Description: The 12 gauge launching cartridge is to be used with a 12-gauge shotgun. It is a blank munition to be used in conjunction with the appropriate launching cup to propel a rubber ball grenade.

Operational Capability/Use: Cartridge is used as a modification piece for a 12-gauge shotgun to allow for use of non-lethal munitions.



12 Gauge Bean Bag Round

Manufacturer: Technical Solutions Group

Vendor: Technical Solutions Group

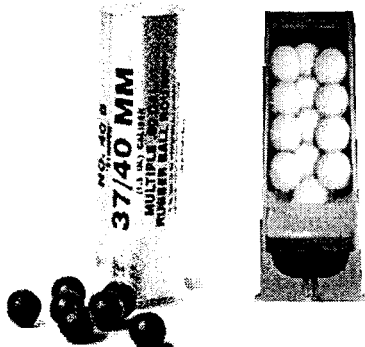
Approximate Cost: \$3.84

Participating Services: Marines, Navy

Description: The beanbag round is intended for use in crowd control situations. The cartridge contains smokeless propellant and does not contain black powder. The projectile consists of one lead shot-filled fabric bag.

Operational Capability/Use: On impact, the bag collapses and the shot acts as a fluid medium, distributing its kinetic energy over four square inches. Ideal for crowd control during civil disturbances, corrections, animal control, and for taking out windows.

40MM (Area) Round



Manufacturer: Defense Technology Corp.

Vendor: Crane Depot

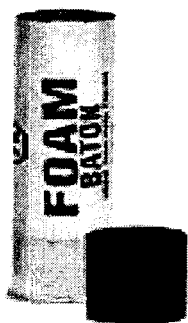
Approximate Cost: \$19.00 each

Participating Services: Army, Marines, Navy, Air Force

Description: The 40mm Crowd Dispersal Round gives the soldier a capability to stun/deter two to three people without penetrating the body by delivering a strong blow to the body. This round is fired from an M203 grenade launcher attached to an M16 rifle or M4 carbine. The round contains 48 0.48 caliber rubber balls. An individual round has a diameter of 1.5 inches with a length of 4.8 inches. It weighs approximately 4 ounces.

Operational Capability/Use: In crowd control this munition gives soldiers a multi-shot non-lethal capability to break contact or enforce a buffer zone. It provides similar capabilities to law enforcement operations. The round is designed to be fired at the center-mass of the adult subject at ranges between 10 meters and 30 meters.

40MM Foam Rubber Baton Round



Manufacturer: Defense Technology Corp.

Vendor: Defense Technology Corp.

Approximate Cost: \$18.70

Participating Services: Marines

Description: The cartridge contains three foam rubber batons in an aluminum cartridge case. They have a nominal velocity of 325 ft/sec at a distance of 3 feet from the muzzle of an M203 Grenade Launcher.

Operational Capability/Use: In crowd control this munition gives soldiers a multi-shot non-lethal capability to break contact or enforce a buffer zone. It provides similar capabilities to law enforcement operations. The round is designed to be fired at the center-mass of the adult subject at ranges between 5 meters and 15 meters.



40MM Sponge Point Grenade

Manufacturer: AMTEC

Vendor: PM SA

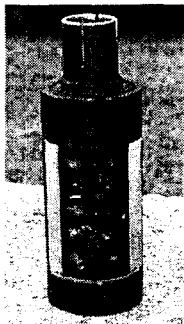
Approximate Cost: \$ 19.00 each

Participating Services: Army, Air Force



Description: The round is 4 5/16 inches in length and 1 1/2 inches in diameter. The round is prominently marked in order to be physically and visually identifiable during daylight and under conditions of reduced visibility, e.g., darkness, fog, smoke, etc. The propellant is smokeless to minimize the fouling of weapons systems.

Operational Capability/Use: In crowd control this munition gives soldiers a multi-shot non-lethal capability to break contact or enforce a buffer zone. It provides similar capabilities to law enforcement operations.



5.56 (Point) Round

Manufacturer: Alliant Techsystems

Vendor: Alliant Techsystems

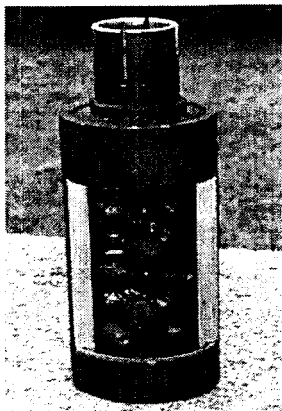
Approximate Cost: \$ 88.50 each

Participating Services: Army



Description: The Rifle Launched Munition requires the firer to fire a blank round to launch the multiple ball projectiles allowing the firer to rapidly switch to lethal munitions should the situation require.

Operational Capability/Use: The round is designed to be fired at the center mass of the adult subject at ranges between 30 meters and 80 meters. Shots fired at subjects closer than 20 meters or shot placement at the head or groin may cause serious injury or death.



5.56 (Area) Round

Manufacturer: Alliant Techsystems

Vendor: PM SA

Approximate Cost: \$ 90.40 each

Participating Services: Army



Description: The Rifle Launched Munition requires the firer to fire a blank round to launch the multiple ball projectiles allowing the firer to rapidly switch to lethal munitions should the situation require.

Operational Capabilities/Use: The round is designed to be fired at the center mass of the adult subject at ranges between 30 meters and 80 meters. Shots fired at subjects closer than 20 meters or shot placement at the head or groin may cause serious injury or death.



Diversionary/Flash-Bang Stun Hand Grenade

Manufacturer: Universal Propulsion

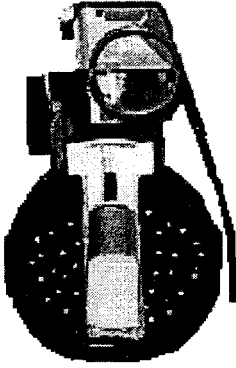
Vendor: ACALA

Approximate Cost: \$107.00 each

Participating Services: Army

Description: The height is approximately 4.89” and the diameter is approximately 1.32.” The total weight is 14.4 oz. The color is black with green banding at the bottom.

Operational Capability/Use: This is a hand thrown reusable flash bang stun device primarily for Special Reaction Team (SRT) use in forced entry scenarios and could be used for selected MOUT or crowd control operations. The device is designed to be thrown into a room (through an open door, a standard glass window or other opening) where it delivers a loud bang and bright flash sufficient to temporarily disorient the occupants.



Rubber Ball Grenade

Manufacturer: Combined Tactical Systems

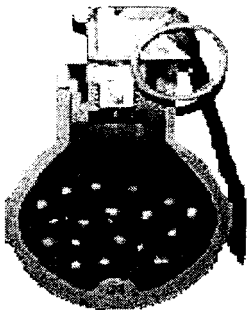
Vendor: Combined Tactical Systems

Approximate Cost: \$26.50

Participating Services: Marines, Navy, Air Force

Description: The cartridge consists of an M201A1 equivalent fuse, a separating fuse body, a black powder separation charge, a pressed black powder delay, a bursting charge of flash powder, at least 100 rubber pellets, and a rubber grenade body. It can be launched from the 12-gauge launching cup.

Operational Capability/Use: The Rubber Ball Grenade is used to break-up unruly crowds and mobs or as a clearing device in rooms or closed in spaces by dissuading, disrupting or delaying their actions.



Inert Rubber Ball Hand Grenade

Manufacturer: Combined Tactical Systems

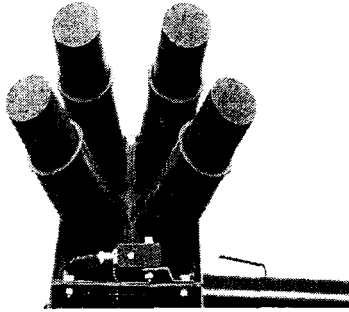
Vendor: Combined Tactical Systems

Approximate Cost: \$17.50 each

Participating Services: Marines

Description: Blue for training, but identical to the Rubber Ball Grenade in weight and operation.

Operational Capability/Use: Training purposes only.



Light Vehicle Obscurant Smoke System (LVOSS)

Manufacturer: Centech

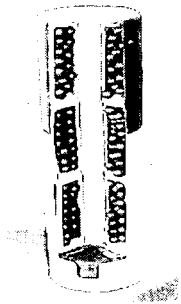
Vendor: SBCCOM

Approximate Cost: \$2,820.00 each launcher

Participating Services: Army, Marines,

Description: LVOSS (M304) is a non-lethal grenade-launching device mounted on HMMWVs designed to provide self-protection through obscurant. With new 66mm non-lethal grenades that contain rubber pellets and flash-bang features, LVOSS expands its role in non-lethal operations.

Operational Capability/Use: The LVOSS is a self-defense smoke/obscurant device externally mounted on the host vehicle. The LVOSS is made of lightweight materials. The LVOSS has a push button Arming/Firing Unit (A/FU) which allows the operator to select the direction that needs to be obscured. Additionally, the LVOSS uses smoke grenades that are low in toxicity to minimize safety hazards to personnel and the environment.



66MM (LVOSS) Canister (Rubber Ball)

Manufacturer: PW Defence (UK)

Vendor: Army Procurement

Approximate Cost: \$88.00 each

Participating Services: Army, Marines

Description: The XM99 is an area target munition that can be fired from the standard LVOSS launcher standard on selected Armament Carrier HMMWVs and can be fired from any 66mm smoke-launching system found on most armored vehicles. These rounds are designed to fire from 80 to 100 meters and burst, delivering a payload of rubber non-penetrating projectiles.

Operational Capability/Use: This is an area target munition that can be fired from the standard LVOSS launcher on selected Armament Carrier HMMWVs and can be fired from any 66mm smoke launching system found on most armored vehicles. These munitions lack the ability to be precision delivered and are meant to affect a large number of people at longer standoff ranges. This gives convoys and crowd control formations a longer range support weapon to affect crowds beyond the range of shoulder fired NL weapons. It is best used to provide supporting NL fires to crowd control formations.



66MM (LVOSS) Canister (Diversionsary/Flash-Bang)

Manufacturer: PW Defence (UK)

Vendor: Army Procurement

Approximate Cost: \$133.98 each

Participating Services: Army, Marines

Description: The round contains 3 bursting sub-munitions, with pyrotechnic charges for audio and visual stimuli. The overall length is 25.25 cm (9.94”) and the diameter is 66mm. The total weight of the munition is 725.7 gm (1.6 lb). It is colored green and black with a brown band.

Operational Capability/Use: The XM98 is an area target munition that can be fired from the standard LVOSS launcher standard on selected Armament Carrier HMMWVs and can be fired from any 66mm smoke-launching system found on most armored vehicles. These rounds are designed to fire from 80 to 100 meters and burst delivering a flash bang diversionsary/warning effect.



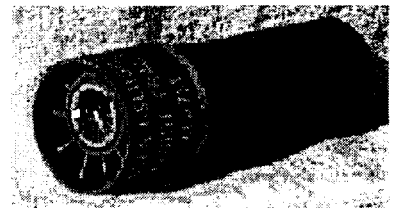
66MM Riot Control Grenade (L96A1)

Manufacturer: PW Defence (UK)

Vendor: SBCCOM

Approximate Cost: \$71.44

Participating Services: Army



Description: The L96A1 is an anti-riot grenade that dispenses CS Riot Control Agent. It is launched from 66 mm vehicle mounted dischargers in a 4-grenade salvo. It has an effective range of 65 – 95 meters.

Operational Capability/Use: Each L96A1 contains 23 individual canisters filled with CS compound, providing a number of CS sources, rather than a single plume.



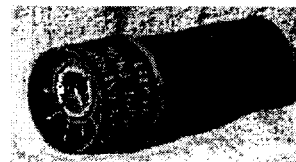
66MM Riot Control Training Grenade (L97A1)

Manufacturer: PW Defence (UK)

Vendor: SBCCOM

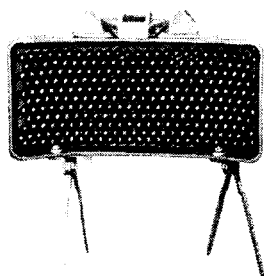
Approximate Cost: \$56.00

Participating Services: Army



Description: This munition contains 23 canisters filled with cinammic acid (RCA) compound. The length of the round is 185mm (7.28”) and the diameter is 66mm. The total weight of the munition is 568 gm (1.25 lb). It is colored blue with brown and green bands.

Operational Capability/Use: The L97A1 is a training version of the L96A1. It uses cinammic acid (CA) smoke to simulate the riot control agent.



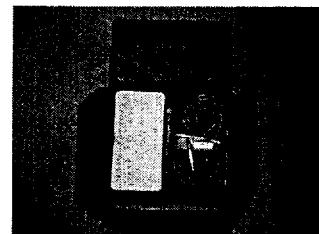
Modular Crowd Control Munition

Manufacturer: Lone Star

Vendor: PM MCD

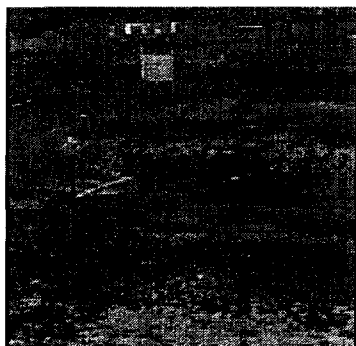
Approximate Cost: \$420.00 each

Participating Services: Army



Description: The M5, MCCM is a non-lethal, rubber-ball munition, housed in a casing similar to the current Claymore mine that will stop, confuse, disorient and/or temporarily incapacitate area targets/personnel at close range.

Operational Capability/Use: The MCCM is intended to be a direct fire, low hazard device which will produce an anti-personnel non-lethal effect upon impact. The MCCM will provide field commanders and soldiers a force multiplier through greater flexibility in the application of non-lethal force and it will increase their effectiveness during military operations.



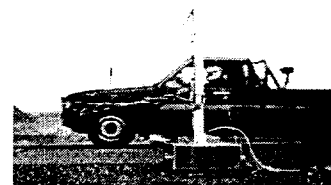
Portable Vehicle Arresting Barrier (PVAB)

Manufacturer: Primex

Vendor: Army Procurement

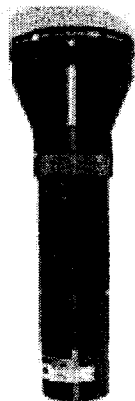
Approximate Cost: \$40,500 each

Participating Services: Army, Marines



Description: It has the capability of stopping a light truck (up to 7500 lbs) at speeds up to 45 mph. It can be installed by two soldiers in approximately one hour. The total weight of the system is 646 pounds.

Operational Capability/Use: The PVAB pre-emplacement capture system provides area denial at checkpoint or entryway to high value assets or facilities. Emplaced by two people in less than one hour, the PVAB provides quick and mobile deterrence to unauthorized and/or potentially suspicious vehicles.



Dissuader Laser Illuminator

Manufacturer: SEA Technology

Approximate Cost: \$ 5,000

Participating Services: Air Force

Description: A hand held laser 'flashlight' consisting of an extremely bright beam of red light with variable width. It is certified eye-safe at all ranges and under all tactical conditions, and is suitable for law enforcement missions where revealing a drawn weapon is not advisable.

Operational Capability/Use: The Laser Dissuader sends language independent warning and challenge to an adversary, forcing suspect to signal his intent: retreat, surrender, or continue aggressive behavior. It dissuades and/or delays adversary by inducing overpowering glare or flashblindness in eyes, and can be used as a hand-held augmentation to sidearm carried on law enforcement missions with a quick conversion to lethal force by using sidearm.

DoD Non-Lethal Weapons and Equipment Review

Appendix B

U.S. COAST GUARD NON-LETHAL WEAPONS AND EQUIPMENT

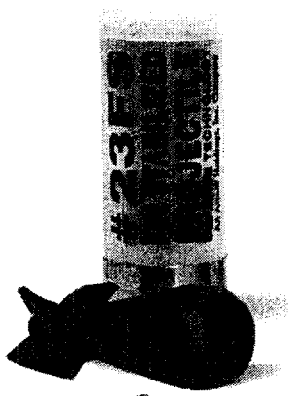
The following equipment list does not constitute an endorsement by the Department of Justice or the National Institute of Justice and should not be considered by civil law enforcement agencies as an endorsement for their purchase or use.

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DoD Non-Lethal Weapons and Equipment Review

United States Coast Guard

12 Gauge Rubber Fin Stabilized	3
12 Gauge Rubber Sting Ball	3
Running Gear Entanglement System	4
Copper Solid Sabot Slugs	4
12 Gauge Peace Keeper	5



12 Gauge Rubber Fin Stabilized

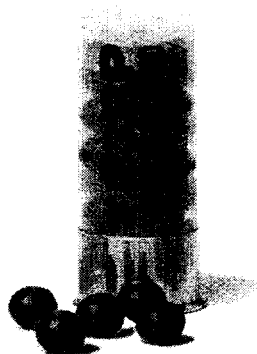
Manufacturer: Technical Solutions Group, Inc.

Approximate Cost: \$ 4.00 per round

Participating Services/Agencies: Coast Guard

Description: The cartridge is a fixed round of ammunition consisting of a plastic hull shell case and steel case base containing a propelling charge and percussion primer. A solid rubber fin stabilized projectile body is fitted in the hull with a plastic wad spacer.

Operational Capability/Use: This cartridge is a Less than Lethal round designed to provide temporary incapacitation through kinetic energy impact on the target. This round has been fielded for Coast Guard use.



12 Gauge Rubber Sting Ball

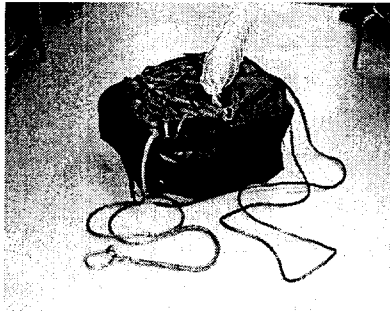
Manufacturer: Technical Solutions Group, Inc.

Approximate Cost: \$ 4.00 per round

Participating Services/Agencies: Coast Guard

Description: The cartridge is a fixed round of ammunition consisting of a plastic hull shell case and steel case base containing a propelling charge and percussion primer. Eighteen .32 caliber rubber balls are fitted in the hull with a plastic wad spacer.

Operational Capability/Use: This cartridge is a Less than Lethal round designed to provide temporary incapacitation through kinetic energy impact on the target. This round has been fielded for Coast Guard use.



Running Gear Entanglement System

Manufacturer: Diamond Nets, Inc.

Approximate Cost: \$ 17.00 per foot

Participating Services/Agencies: Coast Guard

Description: A series of short, separate looped polyethylene lines are attached to a single long polyethylene base line.

Operational Capability/Use: This entanglement net is used to foul the propellers of plaining hull small boats. It can be delivered several ways. The capability to manually deploy the net from a soft-sided bag has been fielded for Coast Guard use in limited numbers. The Coast Guard is developing deployment systems using compressed air for both surface craft and helicopters.

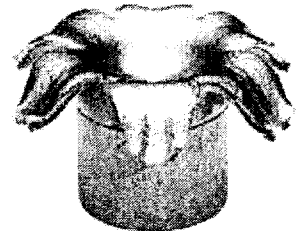


Copper Solid Sabot Slugs

Manufacturer: Remington Arms Company

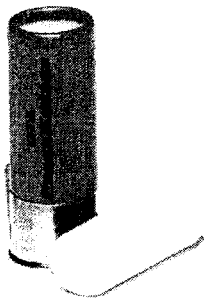
Approximate Cost: \$ 2.00 per round

Participating Services/Agencies: Coast
Guard



Description: The cartridge is a fixed round of ammunition consisting of a .52 caliber copper projectile, plastic sabot sleeve, plastic hull shell case and steel case base containing a propelling charge and percussion primer.

Operational Capability/Use: This round will be used to disable small boat engines. Designed to be highly accurate, controlled expansion with 100% weight retention to a range of 100 yards. This round is pending approval for Coast Guard use.



12 Gauge Peace Keeper

Manufacturer: Technical Solutions Group, Inc.

Approximate Cost: \$ 4.00 per round

Participating Services/Agencies: Coast Guard

Description: The cartridge is a fixed round of ammunition consisting of a plastic hull shell case and steel case base containing a propelling charge and percussion primer. A cylindrical elastomer projectile body is fitted in the hull with a plastic wad spacer. The projectile contains a non-toxic, liquid dye. The Coast Guard is working with the manufacturer to develop a pepper spray (OC) powder fill for this round.

Operational Capability/Use: This cartridge is a Less than Lethal round designed to provide temporary incapacitation through kinetic energy impact and provides marking of the target. The Coast Guard is working with the manufacturer to develop an OC powder fill for this round as a method to precisely deliver an incapacitating RCA at an extended range.

DoD Non-Lethal Weapons and Equipment Review

Appendix C

CIVIL LAW ENFORCEMENT LESS THAN LETHAL WEAPONS AND EQUIPMENT

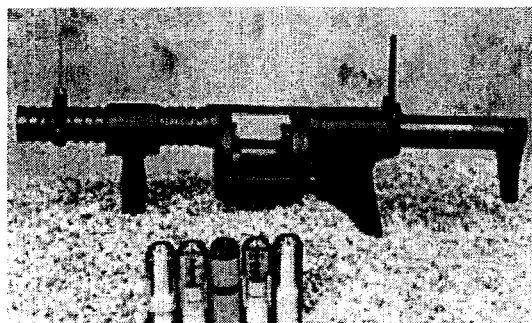
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DoD Non-Lethal Weapons and Equipment Review

Civil Law Enforcement Less-Than-Lethal Weapons and Equipment

ARWEN® 37 MM Weapon System	2
SAGE SL-6® 37MM Weapon System.....	2
SAGE SL-1® 37MM Weapon System.....	3
M-26 Advanced Taser.....	3
40 MM Rifled Barrel Launcher w/mounted Holographic Site	4
Pyrotechnic Grenade #2 CS	4
Pyrotechnic Grenade #3 CS	5
Pyrotechnic Grenade, Triple Charger	5
37 MM Scat Shell, CS	6
37 MM Impact Munition, Stinger.....	6
37 MM Impact Munition (Kinetic), Foam Baton	7
12 Gauge Impact Munition, Bean Bag, Super Sock™.....	7
Aerosol Disburser MK-46™, OC.....	8
Aerosol Disburser, ProtectoJet 5™ OC/CS	8
Aerosol Disburser OC/CS, MK-9.....	9
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T-16 OC Non-Pyrotechnic Expulsion Grenade	10
#15 OC/CS Rubber Ball Munition.....	10
PepperBall™	11
#15 Stinger™ Grenade	11
#20 37 MM Fired Foam Batons.....	12
37 MM Beanbag Round.....	12
Wooden Riot Baton.....	13



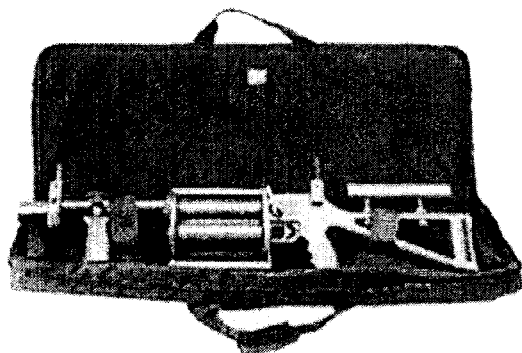
ARWEN® 37 MM Weapon System

Manufacturer: Royal Ordnance Defense
Approximate Cost: \$1,500-2,000

Participating Law Enforcement: Los Angeles Sheriff's Department

Description: The ARWEN 37mm is a less lethal five-shot, semi-automatic revolver shoulder weapon designed as an anti-riot weapon.

Operational Capability/Use: The ARWEN can be used for intervention in riots (civil/custody) and cell extractions, selective removal of leaders or instigators in disturbances or riots, and selective intervention in use of force situations where escalation of force is necessary. Though considered less lethal, the ARWEN has the potential to inflict serious even fatal injuries if improperly used.



SAGE SL-6® 37MM Weapon System

Manufacturer: Penn Arms of Pennsylvania
Approximate Cost: \$1,400-2,000

Participating Law Enforcement: Los Angeles Sheriff's Department

Description: The SL-6 37mm is a less lethal six-shot, semi-automatic revolver shoulder weapon and will replace the ARWEN system.

Operational Capability/Use: Can be used for intervention in riots (civil/custody) and cell extractions, selective removal of leaders or instigators in disturbances or riots, and selective intervention in use of force situations where escalation of force is necessary.



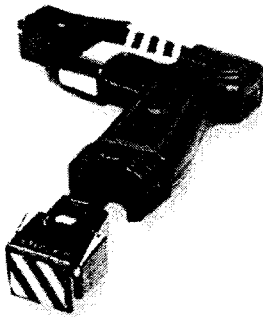
SAGE SL-1 @ 37MM Weapon System

Manufacturer: Penn Arms of Pennsylvania
Approximate Cost: \$600-1,200

Participating Law Enforcement: Los Angeles Sheriff's Department

Description: The SL-1 is a less lethal single shot, break open shoulder weapon, and has many common operations and functions with the SAGE SL-6.

Operational Capability/Use: Can be used for intervention in riots (civil/custody) and cell extractions, selective removal of leaders or instigators in disturbances or riots, and selective intervention in use of force situations where escalation of force is necessary.



M-26 Advanced Taser

Manufacturer: Taser International
Approximate Cost: \$1,000.00 (Quantity dependent)

Participating Law Enforcement: Los Angeles Sheriff's Department, Philadelphia SWAT

Description: The M-26 Advanced Taser fires two probes up to 21 feet from a replaceable air cartridge. These probes are connected to the weapon by high-voltage insulated wire.

Operational Capability/Use: The M-26 uses a new Electro-Muscular Disruption (EMD) technology and can completely override the central nervous system and directly control the skeletal muscles. When probes make contact with the target the Taser transmits a powerful electrical pulse along the wires and into the body of the target through up to two inches of clothing. The EMD effect causes an uncontrollable contraction of the muscle tissue causing physical debilitation regardless of pain tolerance or mental focus.



***40 MM Rifled Barrel Launcher
w/mounted Holographic Site***

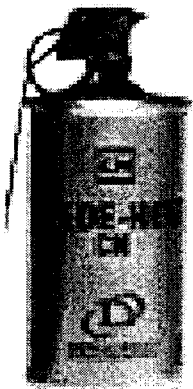
Manufacturer: Defense Technology Corp.

Approximate Cost: \$550.00

Participating Law Enforcement: Los Angeles Sheriff's Department

Description: The launcher is designed to fire all DT/FL's 40mm and 37/40mm ordnance. The launcher features a rifled bore, single/double action trigger group, integrated sling rings, and a weaver base for optic attachments.

Operational Capability/Use: Can be used for intervention in riots (civil/custody) and cell extractions, selective removal of leaders or instigators in disturbances or riots, and selective intervention in use of force situations where escalation of force is necessary.



Pyrotechnic Grenade #2 CS

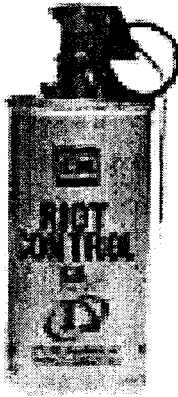
Manufacturer: Defense Technology Corp.

Approximate Cost: \$ 27.50

Participating Law Enforcement: U.S. Marshals, Seattle SWAT

Description: A 21.9-ounce canister type grenade with pelletized chemical agent and fly off fuse.

Operational Capability/Use: Can be launched from a weapon or thrown by hand. The irritant discharges from one port on bottom and four ports on top of the canister.



Pyrotechnic Grenade #3 CS

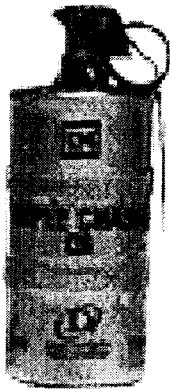
Manufacturer: Defense Technology Corp.

Approximate Cost: \$ 26.50

Participating Law Enforcement: U.S. Marshals, Seattle
SWAT

Description: A 16-ounce canister-type grenade with palletized chemical agent and fly-off fuse, launched from weapon or thrown, irritant discharges from one port on bottom and four ports on top of canister.

Operational Capability/Use: Medium size grenade typically carried by designated less-lethal specialist, but may be carried by other tactical personnel in limited quantities. Grenade is suitable for large area coverage in outside crowd control.



Pyrotechnic Grenade, Triple Charger

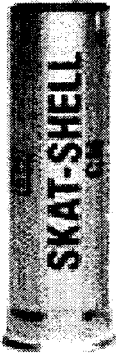
Manufacturer: Defense Technology Corp.

Approximate Cost: \$ 39.50

Participating Law Enforcement: U.S. Marshals,
Seattle SWAT

Description: A 17-ounce canister-type grenade consisting of three, separating sub-munitions so that CN or CS can be dispersed in wide area.

Operational Capabilities/Use: The grenades can be launched by hand or from most 12-gauge shotguns by using an appropriate adapter and launching cartridge.



37 MM Scat Shell, CS

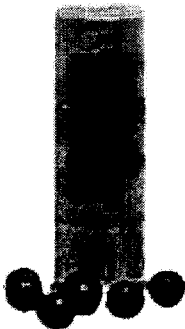
Manufacturer: Defense Technology Corp.

Approximate Cost: \$ 30.00

Participating Law Enforcement: U.S. Marshals, Seattle SWAT, Washington, DC Police Department, Philadelphia SWAT

Description: Pyrotechnic chemical projectile consisting of five separating sub-munitions fired from a 37 mm smooth-bore weapon designed for outdoor crowd control.

Operational Capability/Use: Typically carried by less-lethal specialist. Shell is suitable for projecting pyrotechnic canisters approximately 80-100 yards with relatively broad area coverage.



37 MM Impact Munition, Stinger

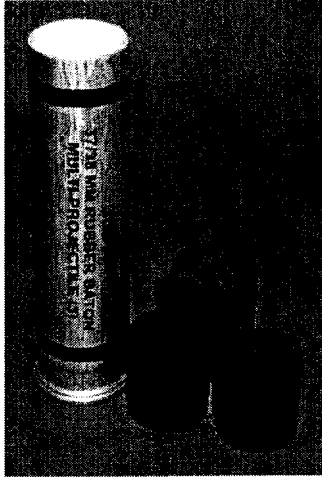
Manufacturer: Defense Technology Corp.

Approximate Cost: \$19.00

Participating Law Enforcement: U.S. Marshals, Seattle SWAT

Description: Impact munition containing multiple projectiles consisting of either 32 or 60 caliber rubber balls.

Operational Capability/Use: This a close-range broad area crowd control munition fired from a smooth-bore 37 mm weapon generally effective at ranges up to 20 meters.



37 MM Impact Mmunition (Kinetic), Foam Baton

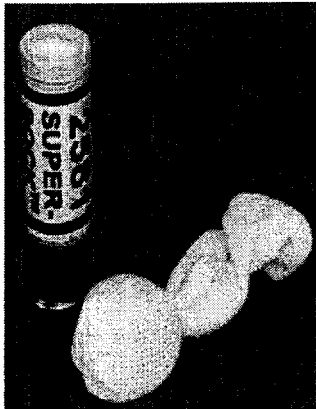
Manufacturer: Combined Tactical Systems

Approximate Cost: \$20.00

Participating Law Enforcement: U.S. Marshals,
Seattle SWAT, Washington, DC Police Department

Description: Impact munition cartridges with three or five rubber foam or hardwood batons.

Operational Capability/Use: This is a close range broad area crowd control munition fired from a smooth-bore 37 mm weapon generally effective at ranges up to 20 meters.



12 Gauge Impact Mmunition, Bean Bag, Super Sock™

Manufacturer: Combined Tactical Systems

Approximate Cost: \$.700

Participating Services/Agencies: U.S. Marshals,
Chicago Police Department, Washington, DC Police
Department, Philadelphia SWAT

Description: Impact munition consisting of a cotton drag stabilized Asock™ containing approximately 0.4 ounces of lead shot.

Operational Requirements/Use: This munition is fired from a 12-gauge shotgun and is generally effective at ranges up to 30 meters. The Super Sock™ projectile is in its deployed state immediately upon exiting the weapon barrel.



Aerosol Disburser MK-46™ OC

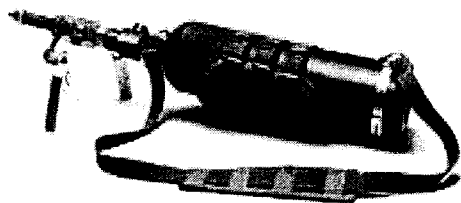
Manufacturer: Defense Technology Corp.

Approximate Cost: \$175.00

Participating Law Enforcement: U.S. Marshals,
Seattle SWAT, Washington, DC Police Department
(MK-46H Horizontal), Philadelphia SWAT

Description: Large rechargeable chemical disburser containing compressed Nitrogen propellant with OC chemical agent designed for crowd control.

Operational Capability: Intended for employment by formations conducting crowd control and law enforcement operations. It is lightweight, operated by one individual, and easily refilled/pressurized with available maintenance equipment. Provides small unit self-defense capabilities from large crowds, and provides an offensive capability to clear crowds from critical areas. Spray pattern is stream effective up to approximately 5 meters.



Aerosol Disburser, ProtectoJet 5™ OC/CS

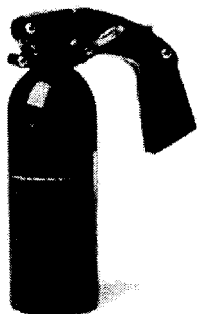
Manufacturer: ISPRA

Approximate Cost: \$800.00

Participating Law Enforcement: U.S. Marshals,
Chicago PD

Description: Large rechargeable chemical disburser containing compressed Carbon Dioxide propellant with either OC or CS chemical agent designed for crowd control. Spray pattern is high-velocity mist effective out to approximately 10 meters.

Operational Capability/Use: The micron sized fog particles are effective for controlling combative behavior in correctional facilities, stopping fighting in seconds reducing the possibilities of injuries to both staff and inmates. The narrow fog delivery pattern allows control of specific individuals or a small group, eliminating the need to affect a large group unless necessary. The Model 5 can provide 15 one-second Pepper Spray bursts before refilling.



Aerosol Disburser OC/CS, MK-9

Manufacturer: Defense Technology Corp.

Approximate Cost: \$ 26.20 Live OC

Participating Law Enforcement: U.S. Marshals, Seattle SWAT, Philadelphia SWAT

Description: Medium sized chemical disburser containing compressed Carbon Dioxide propellant with either OC or CS chemical agent designed for crowd control.

Operational Capability/Use: Intended for employment by formations conducting crowd control and law enforcement operations. It is lightweight, operated by one individual, and easily refilled/pressurized with available maintenance equipment. Provides small unit self-defense capabilities from large crowds, and provides an offensive capability to clear crowds from critical areas. Spray pattern is high-velocity mist effective out to approximately 5 meters.



MK-4 Handheld OC Dispenser

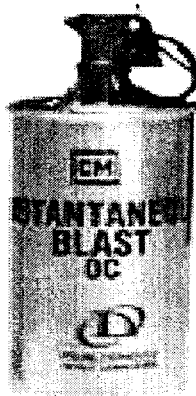
Manufacturer: Defense Technology Corp.

Approximate Cost: \$7.29 each (MK-4 Dispenser)

Participating Law Enforcement: Seattle SWAT, Chicago Police Department

Description: The MK-4 contains an all-natural water based irritant formula consisting of Oleoresin Capsicum. It can deliver 20 one-second bursts out to 15 feet.

Operational Capability/Use: The MK-4 contains Oleoresin Capsicum (Pepper Spray). These individual riot control agent dispensers are intended primarily for self-defense or to keep rioters out of arms reach of soldiers conducting crowd control tactics or engaged in missions where a noncombatant threat exists.



T-16 OC Non-Pyrotechnic Expulsion Grenade

Manufacturer: Defense Technology Corp.

Approximate Cost: \$ 39.50

Participating Law Enforcement: Seattle SWAT, Washington, DC Police Department

Description: The long thin expulsion grenade contains pulverized chemical agents, has a one second delay, and a carbon dioxide cartridge in the center. The OC is expelled by the release of gas from the carbon dioxide cartridge.

Operational Capability/Use: The cartridge disperses irritant through two ports along side of grenade and a foam bumper on the base. No pyrotechnics allows for indoor/outdoor use. Fills a 10'x20' room in five seconds, anti-throwback.



#15 OC/CS Rubber Ball Munition

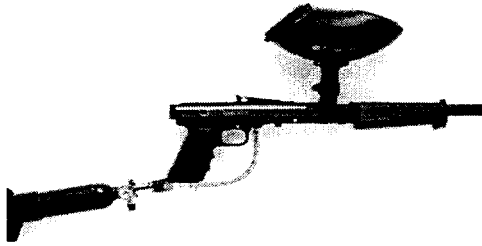
Manufacturer: Defense Technology Corp.

Approximate Cost: \$ 26.50

Participating Law Enforcement: Seattle SWAT

Description: The grenade weighs 11.4 ounces and has a rubber ball body containing additional small rubber balls. It contains pelletized agent inside and a fly off fuse.

Operational Capability: This grenade can be thrown or launched from a weapon. The OC/CS discharges from four ports on the side of the grenade. When deployed the ball breaks into halves and disperses the balls in a circular pattern. The ball contains 9.9 grams of CS powder that is dispensed when the ball is deployed.



PepperBall™

Manufacturer: JAYCOR

Approximate Cost: \$ 555-1499 per unit

Participating Law Enforcement: Seattle SWAT

Description: Automatic and semi-automatic rifles shoot three-gram, marble-size balls, which explode into a cloud of pepper spray upon impact.

Operational Capability/Use: Frangible projectiles are enhanced by the application of oleoresin capsicum (OC), which can assist in the apprehension of uncooperative or violent suspects.



#15 Stinger™ Grenade

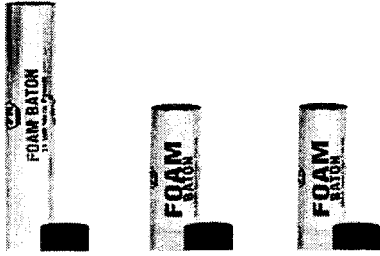
Manufacturer: Defense Technology Corp.

Approximate Cost: \$ 400.00 per case of ten

Participating Law Enforcement: Seattle SWAT,
Los Angeles Sheriff's Department

Description: A 10-ounce grenade with a rubber ball body. Contains an explosive charge and approximately 180 3/8 inch diameter pellets.

Operational Capability/Use: When deployed, the ball breaks into halves and disperses the pellets in a circular pattern.



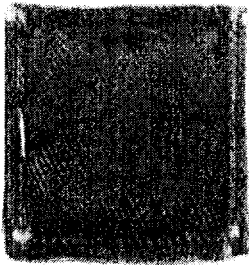
#20 37 MM Fired Foam Batons

Manufacturer: Defense Technology Corp.
Approximate Cost: \$ 20.14

Participating Law Enforcement: Seattle SWAT, Philadelphia SWAT

Description: A dynamic energy round used for the incapacitation or distraction of single, non-compliant or aggressive subjects.

Operational Capability: The foam baton is best suited at close distances. The lightweight foam batons lose their energy quickly and may only be effective at distances where the safety of the operator may be compromised.



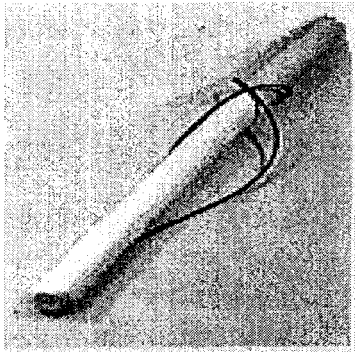
37 MM Beanbag Round

Manufacturer: Defense Technology Corp.
Approximate Cost: \$21.00

Participating Law Enforcement: Seattle SWAT

Description: The beanbag round is intended for use in crowd control situations. The cartridge contains smokeless propellant and does not contain black powder. The projectile consists of one lead shot-filled fabric bag.

Operational Capability/Use: On impact, the bag collapses and the shot acts as a fluid medium, distributing its kinetic energy over four square inches. Ideal for crowd control during civil disturbances, corrections, animal control and for taking out windows.



Wooden Riot Baton

Approximate Cost: \$16.50

Participating Law Enforcement: Seattle SWAT,
Chicago Police Department

Description: Riot batons are wooden sticks approximately 40 inches long and made of hickory.

Operational Capability/Use: Designed for use by police involved in crowd control to keep people at a distance and for a fast defense in conflict situations.

DoD Non-Lethal Weapons and Equipment Review

Appendix D

Glossary and Terms

Glossary and Terms

Acoustic Weapons. Devices that emit sonic frequencies causing such sensations as debilitating dizziness and motion sickness or nausea, and can also generate vibrations of body organs and can result in extreme pain seizures and even death.

Commercial-off-the-Shelf (COTS). Commercially available items for purchase on the open market.

Electrical Weapons. Devices that stun target individuals with a high voltage very low current, short duration electrical shock that incapacitates the individual.

Entanglement Weapons. Used to entangle feet, tracked vehicles, and the outboard motors of boats. Entanglement weapons may be disbursed by a net gun which can entangle a human or vehicular target. One such net is 18 feet wide and employs glue-coated strands. Another is 28 feet wide and when fired from a cannon can envelop a car or armored vehicle. Nets may also be electrified to release an electric shock when assailant struggles.

Executive Agent (EA). Serves as primary point of contact for NLW within the Department of Defense; coordinates NLW Requirements of the Warfighting Commanders; provides oversight for all NLW policy issues, and ensures coordination between acquisition and requirements communities.

Integrated Product Team (IPT). Principal role is to serve as the Joint Service representative body in establishing and directing DoD NLW programs for joint doctrine, professional training, materiel requirements, research and development and acquisition related activities.

Joint Coordination and Integration Group (JCIG). The JCIG will act in an oversight capacity, reviewing and recommending approval to the IPS for new starts or the termination of unsuccessful efforts. The JCIG will coordinate and integrate NLW programs supported by the JNLWP. The JCIG will catalog and track progress of independent and Joint NLW programs looking for efficiencies and leveraging opportunities.

Joint Mission Area Analysis (JMAA). The JMAA is a thorough end-to-end analysis of the potential contribution of non-lethal capabilities to the U. S. Military. The JMAA supports the requirements generation system and outlines core capabilities.

Joint Non-Lethal Weapons Directorate. The Directorate was established to execute and manage the JNLWP and to implement operational structure. The Directorate manages the day-to-day activities and provides support to the IPT. The JNLWD will ensure that funding efficiencies are in place and approaches among the divisions are coordinated and maintained. The JNLWD combines military, civil service and support personnel tasked to implement and maintain an aggressive, energetic, and forward-looking NLW program. The Directorate's responsibilities also include serving as the DoD NLW single point of contact for liaison with foreign entities on matters of mutual interest concerning NLWs.

DoD Non-Lethal Weapons and Equipment Review

Glossary and Terms

Less-than-Lethal Weapons. Less-than-Lethal weapons refer to weapons primarily designed to temporarily disable or stop suspects without killing, thereby providing law enforcement and corrections personnel an alternative to lethal force where appropriate.

Light Based Weapons. Weapons consisting of a laser intended to overload, destroy, or degrade optics or target acquisition electronics from the air, sea, or land. Also included, high intensity lights designed to temporarily blind an aggressor.

Marine Expeditionary Unit (MEU). A Marine air-ground task force (MAGTF) that is constructed around a reinforced infantry battalion, a reinforced helicopter squadron, and a task-organized combat service support element. It normally fulfills Marine Corps forward sea-based deployment requirements the MEU provides an immediate reaction capability for crisis response and is capable of limited combat operations.

Non-Lethal Capabilities Set (NLCS). The NLCS generally comprises four categories of items: Protective Equipment, Weapons and Munitions, Communication Enhancement and Other Devices, and Training Devices. The primary focus of the NLCS components is on counter-personnel capabilities, area denial, and deterrent capabilities (for personnel, and vehicles). The NLCS components are ideally suited for use against noncombatants, whose presence or acts jeopardize a unit's ability to accomplish its assigned mission.

Non-Lethal Weapons. Non-lethal weapons refer to weapons explicitly designed and primarily employed so as to incapacitate personnel and materiel while minimizing fatalities, permanent injury to personnel, and undesired damage to property and the environment.

Operational Testing and Evaluation (OT&E). The test and analysis of a specific end item or system, insofar as practicable under Service operating conditions, in order to determine if quantity production is warranted considering: a. the increase in military effectiveness to be gained; and b. its effectiveness as compared with currently available items or systems, consideration being given to: (1) personnel capabilities to maintain and operate the equipment; (2) size, weight, and location considerations; and (3) enemy capabilities in the field.

Operations Other Than War. OOTW are unconventional military operations such as peacekeeping, peaceenforcement, hostage rescue, and other forms of conflict not commonly associated with warfare Other terms frequently used to describe these operations are Military Operations other than War (MOOTW), Support and Stability Operations (SASO), and Low Intensity Conflict (LIC).

Projectile Weapons. Fabric sacks filled with lead shot (bean bag projectile) are designed to be fired from 12 gauge shotguns and 37mm (40mm) launchers. The bags conform to the shape of the target on impact, producing less damage than a solid hard projectile. Also included in the non-lethal projectile category are rubber and wooden projectiles delivered from a riot gun to disperse an unruly crowd.

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Riot Control Agent (RCA). Standard riot control agent. The term CS is derived from the two scientists, B.B. Carson and R.W. Sloughton, who first prepared it in 1928. First used by civilian law enforcement in 1968 during the riots in Washington, D.C. While an effective riot control agent, which incapacitates on average from 5 to 10 minutes, decontamination and cross-contamination is a considerable problem in urban environments.

Riot Control Agent (OC). Oleoresin Capsicum. A food product obtained from chili peppers which are dried and ground into a fine powder. When mixed with an emulsifier such as mineral, vegetable, soy oil or water, it may be sprayed from a variety of dispensers and used as an irritant for safely controlling violent persons or vicious animals and/or restoration and maintenance of order.