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**ARTICLE:** A PRIMER ON THE EMPLOYMENT OF NON-LETHAL WEAPONS

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**LEXISNEXIS SUMMARY:**

... Some of the missions where the capability represented by these non-lethal weapons may be very useful are: counterdrug; peacekeeping; peace enforcement; humanitarian assistance; denial of movement; sanction enforcement; counter-terrorism; countersniper; counter guerrilla; electronic attack; movement to contact; ground attack; close air support; offensive air missions; pursuit; riverine assault; strategic attack; suppression of enemy air defense; air defense; barrier and mine warfare; countermechanized; counterpursuit; amphibious assault; facilities seizure; search and rescue; raids; disabling command and control communications; industrial sabotage; aviation sabotage; vehicle disablement; delaying enemy advance or attack; disabling vessels, submarines and naval mines; and counterproliferation of weapons of mass destruction. ... Although customary international law may appear to remain constant, it does slowly change to incorporate new battlefield practices of warring land, naval and air forces. ...

**TEXT:**

[\*1] **I. Introduction**

During Operation United Shield, n2 U.S. forces under the command of Lieutenant General (now General) A. C. Zinni, U.S. Marine Corps, pioneered the use of a new class of weapon systems that have become known as non-lethal [\*2] weapons. General Zinni's decision to equip the Marines of I Marine Expeditionary Force (MEF) with non-lethal weapons was revolutionary. Without question, his decision has had a tremendous impact on all U.S. military forces by providing the stimulus to change the perception of non-lethal weapons. In addition, Operation United Shield prepared the groundwork for the development of a new concept for the employment of non-lethal weapons and moved the U.S. military toward a new age of warfare.

Some critics may argue since the U.S. military used weapon systems or technology that could be characterized as non-lethal (for example, riot control agents, n3 defoliants, n4 and carbon fibers against electrical power grids n5 ) prior to Operation United Shield, that the use of non-lethal weapons by the U.S. military was not new. n6 In fact, long before Operation United Shield, technological advances that could be characterized as non-lethal opened the door to new weapon systems with capabilities only dreamed of in the past. At the time of Operation United Shield, several different types of technology that could be characterized as non-lethal existed or were being developed through [\*3] civilian or military research projects. But certainly, the main factor triggering the current non-lethal weapons revolution was indeed what General Zinni and his staff did to prepare for Operation United Shield. During the predeployment phase of this operation, General Zinni's staff examined the existing weapon systems that could be characterized as

non-lethal (from both civilian and military sources) and applied the best of them to create a workable solution to the expected problem of controlling unarmed Somali civilians, while providing adequate protection to the United Nations forces who were withdrawing from Somalia. n7 As part of the strategy for the employment of non-lethal weapons for this operation, General Zinni intentionally publicized the use of these weapon systems. This psychological ploy intimidated potential Somali adversaries and gave the U.S. military a positive public image at home and abroad. It was the preparation for implementation and the formation of a basic concept for the employment of non-lethal weapons that makes General Zinni's actions during Operation United Shield so significant. For not until Operation United Shield, did the U.S. military actively seek, acquire, train with, and deploy non-lethal weapon systems for use for mission accomplishment on the battlefield. In a nutshell, the special emphasis placed on non-lethal weapon systems has led to a reconceptualization of the art of war and diplomacy while at the same time bringing into focus the true meaning of Sun Tzu's statement, "to win one hundred victories in one hundred battles is not the acme of skill. To subdue the enemy without fighting is the acme of skill." n8

Like every new concept in warfare, the non-lethal weapons concept is undergoing developmental pains as it moves from a novelty to the norm. Commanders trying to understand the concept face an uphill battle as they struggle to cut through the misinformation, the confusion and the strategic questions about the utility of non-lethal weapons. Since this class of weapons has become another arrow in the commander's quiver, each commander is confronted with the following questions. How do I select the appropriate non-lethal weapons for my mission? How do I train my personnel in their use, and how do I employ them on the modern battlefield? The goal of this paper is to help the commander work through the non-lethal weapons morass and answer these questions.

## **II. General Discussion of Non-Lethal Weapon Systems**

Most conflicts pose a fear of escalation. The use of non-lethal weapon systems in the early stages of a conflict may reduce the risk of escalation, and give diplomacy a chance to work. Unlike the traditional military capabilities [\*4] associated with lethal weapon systems, the mission context for the employment of non-lethal capabilities is not always obvious. Arguably, non-lethal weapon systems have a potentially broader range of application than do lethal systems. At present, however, non-lethal weapons have not gained widespread acceptance as useful additions to the weapons inventory. n9 For the U.S. military, this must change because failure to properly consider the non-lethal technologies available may reduce the ability of commanders to accomplish their assigned mission, while simultaneously increasing the possibility of collateral damage to civilian property, incidental injury or death to civilians and other adverse effects from the military action taken. As the number and type of non-lethal technologies increase, the U.S. military must adopt procedures and policies that permit their smooth and efficient integration into warfighting and peacekeeping tactics and doctrine. This integration will require a fresh viewpoint and a willingness to embrace non-lethal technology with an open mind. Embracing non-lethal technology will require the military services and military commanders to think "outside the box." The military services must restructure combat units and develop tactics, techniques and procedures for the use of non-lethal weapon systems. n10 Likewise, military commanders must be prepared to reorganize their individual units for the efficient use of a selected non-lethal weapon, to design specific unit level training for each system, to establish safety standards and maintenance support for them, and to develop appropriate rules of engagement for their employment.

Utilization of non-lethal weapon systems in today's joint and combined military climate is very apropos. n11 It also reflects a predictable and logical interest in non-lethal technology by U.S. policymakers and strategists. In light of this growing interest, future commanders will discover that a vital part of putting together the right force for the mission will include the selection of both lethal and non-lethal weapon systems. n12

### **[\*5] A. The Term "Non-Lethal"**

The first step in understanding non-lethal weapons is to examine the term "non-lethal." Initially, many different terms were used to try to capture the essence of this new class of weapon systems. n13 Defining non-lethal weapons has been very difficult not only because diverse perspectives developed over their potential utilization, but also, because

of the erroneous expectations of those hearing the words "non-lethal weapons" that no harm or serious injury will come to those against whom such weapons are employed. n14 The term "non-lethal" refers to the ultimate goal which is to avoid fatalities and the unnecessary destruction of property. All U.S. military commanders since the Vietnam era realize the importance of maintaining public support and confidence for any military operation or campaign. The key to maintaining this public support and confidence when the operation plan calls for the use of non-lethal weapon systems is to provide information to the public about the dangers involved when these weapon systems are used. The public should be made aware that the use of a non-lethal weapon always raises the possibility of serious injury, death or destruction of property. For this reason, many see the term "non-lethal" "as both a euphemism and an oxymoron when applied to weapons." n15 Supporters of the term "non-lethal" acknowledge this apparent ambiguity, while pointing out that the term "non-lethal" more accurately represents the intent of the user which is "neither to kill nor to harm [\*6] permanently." n16 Arguably, any term selected to represent this class of weapon systems would face the same perception problems that the term "non-lethal" faces.

## **B. Definition of Non-Lethal Weapons**

Non-lethal weapon systems include those systems designed to help achieve political and military objectives by providing a means to leverage or compel a change in an opponent's behavior while at the same time precluding the need to intervene with overwhelming lethal force. Almost every definition of non-lethal weapons focuses on two areas. The first is the physical capability of these weapons not to permanently injure, kill or destroy property, and the second is their potential application to traditional military operations (spanning the entire spectrum of conflict) and to "diplomatic matters" n17 of concern. By comparing the various definitions for non-lethal weapons, one will notice that most include one or more of the following elements: (1) weapon systems designed to deter or neutralize the belligerent; (2) weapon systems not designed to kill, cause permanent harm or incidental injury; (3) weapons systems whose impact is intended to be temporary in nature or reversible; and (4) weapon systems designed to cause minimum collateral damage to property and the environment. Within the U.S. military, the term non-lethal has been adopted as the official term for this general class of weapon systems. Non-lethal weapons are defined by the Department of Defense as: "weapons that are explicitly designed and primarily employed so as to incapacitate personnel or material, while minimizing fatalities, permanent injury to personnel and undesired damage to property and the environment." n18 The key factor to note from the Department of Defense definition is that non-lethal weapons are not required to have a zero probability of producing permanent injuries or fatalities. Unlike lethal weapon systems which achieve success through the physical destruction of targets in order to neutralize them, non-lethal weapon systems accomplish the same goal by significantly reducing permanent injuries, fatalities and property damage.

## **[\*7] C. Relationship to Information Warfare**

Information warfare n19 is a very hot topic within the Department of Defense. However, "coming to grips with information warfare is like the effort of the blind men to discover the nature of the elephant." n20 Today, knowledgeable planners talk about seven different forms of information warfare. n21 Those seven forms are: electronic warfare, n22 command and control warfare, n23 psychological warfare, intelligence-based warfare, economic [\*8] information warfare, hacker warfare, and cyberwarfare. Of the seven forms of information warfare Martin C. Libicki states that the threat of economic information warfare, hacker warfare, and cyberwarfare is grossly exaggerated. n24

The relationship of information warfare to non-lethal technology is at once complex and confusing. Part of this confusion stems from the fact that the scope of non-lethal technology is so broad that some experts categorize information warfare as a subset of non-lethal technology. n25 Falling outside the non-lethal weapons umbrella would be those weapon systems used for information warfare that do not minimize fatalities, permanent injury to personnel and undesired environmental or property damage. Although one might argue information warfare is a subset of non-lethal technology, in reality this is not entirely accurate since both lethal and non-lethal weapons systems are used for information warfare.

During the Persian Gulf War, the U.S. military quickly recognized the importance not only of information

operations but of controlling the electromagnetic spectrum. After this conflict, information warfare was established as a distinct area supported by a multiple organizations with their own funding for specific information warfare missions. n26 However, it was not until 1996 with the development of an official Department of Defense non-lethal weapons policy that an office was established and funded for the research and the development of non-lethal weapons. n27 By looking at the timing of the establishment of the new non-lethal technology structure and the information warfare structure, one might conclude that the U.S. military had placed the cart before the horse. n28 As the new military structure for non-lethal weapons continues to develop and expand, a turf battle over control of the research and development of non-lethal technologies between the non-lethal technology structure and the structures established for the seven forms of information warfare is likely to occur.

[\*9] Technology can be both a shield and a sword. Information warfare exploits the enemy's reliance upon technology. Since reliance by the U.S. military upon technology also provides vulnerabilities and dependencies that can be exploited, there is a need for a robust defensive information warfare capability. n29 In both offensive and defensive information warfare, non-lethal weapons are the one class of weapon systems which will allow the U.S. military to maintain its technological edge. As stated by General John M. Shalikashvili, "information warfare has emerged as a key joint war fighting mission area. The explosive proliferation of information-based technology significantly impacts warfighting across all phases, the range of military operations, and all levels of war." n30 In light of General Shalikashvili's statement, one can also say that non-lethal weapon systems will have a major impact throughout the entire spectrum of military operations and at all levels of conflict.

#### **D. Criticisms of Non-Lethal Weapons**

There are numerous criticisms of non-lethal weapons. Some feel their use reflects a lack of political resolve and weakens the effectiveness of the U.S. military by not producing the physical effects necessary to punish an aggressor. Others believe the use of non-lethal weapons encourages politicians to micromanage U.S. military commanders and places the lives of U.S. military personnel at risk. As shown by these statements, many see non-lethal weapons as pawns to politicians who are attracted by the concept that it is possible to apply some force through a relatively benign weapon system to achieve foreign policy objectives. n31 Politicians envision military commanders with non-lethal weapon systems applying proportional force to those future threat scenarios where the risk of death or permanent injury to civilians would be counter to the purpose of the intervention and might result in future escalation to lethal weapons systems. n32 Some feel the development of non-lethal technology will [\*10] trigger unwanted and unintended involvement in parts of the world experiencing turmoil. n33 These critics express concern that this will result in the expanded use of U.S. military forces in non-traditional missions thus reducing their warfighting capability and effectiveness. Furthermore, these critics note that it is unrealistic in many instances to believe that the use of non-lethal weapons will limit the escalation of violence. In interventions which begin with an intent to employ only non-lethal weapons, U.S. forces may quickly face the necessity of employing lethal weapons where no actual intervention would have occurred if it were understood that lethal systems would be used. Criticisms of a political nature such as these will always exist, but the negatives represented by these arguments are far outweighed when examined in light of the almost endless realm of possibilities that non-lethal technologies will provide for modern warfare.

Another criticism of non-lethal technology is that it provides a means for U.S. government contractors to lobby for the purchase of new weapon systems and to attempt to preserve influence in the post cold-war world. n34 Although there should be concern for improper lobbying, this problem is more than adequately offset by the current budgetary climate requiring reductions in military personnel, structure and funding within the military services. However, implicitly included within this criticism is the possibility of a future non-lethal arms race with another nation. A lethal arms race would be a matter of grave concern, but no undue alarm should arise from the possibility of a non-lethal arms race. First, a non-lethal arms race is highly unlikely. Second, if it were to occur, it would likely be a direct response to specific capabilities developed by the United States, and third, it would probably not be initiated by rogue nations who oppose the United States since their desire would be to develop weapon systems to kill U.S. citizens and to destroy U.S. property rather than preserve life and refrain from property destruction.

There is also a feeling that non-lethal technology will make war more likely because of the perceived reduction of its destructive consequences. This criticism appears to be a reaction to the increasing use of U.S. military force in multiple hot spots around the world. However, a review of the U.S. military operations conducted during the last three years does not show a correlation between the increase in the number of U.S. military operations and the use of a non-lethal weapon capability.

[\*11] Another concern is that the effects of non-lethal technology are by definition temporary or reversible. Thus, the commander is required to utilize valuable intelligence assets to maintain surveillance of those enemy forces that have been only temporarily neutralized. n35 As the neutralized forces recover from the initial strike, new strikes with either non-lethal or lethal weapons may be required to keep these forces out of the fight. This could lead to an escalation of the conflict. The response to this criticism is that the use of a non-lethal weapon system should be part of a well thought out and executed operation plan. The plan should address exactly how the neutralized forces and equipment of the adversary will be handled when the effect of the non-lethal weapon wears off. In addition, by mixing non-lethal systems which have a surveillance capability with others which have a neutralizing capability, the command's intelligence gathering function may be greatly improved. This would permit a commander to satisfy his intelligence and surveillance requirements concerning the neutralized forces while allowing for the employment of valuable intelligence assets elsewhere in the conflict.

Similarly, non-lethal weapons are viewed as posing battle damage assessment (BDA) problems. n36 Since the effect of a non-lethal weapon may be difficult to confirm, prudence may necessitate multiple non-lethal strikes against a single target, but this problem is not unique to non-lethal systems. In past conflicts, military planners using lethal weapon systems have struggled with how to obtain an accurate BDA, and the BDA problem is expected to continue whether non-lethal or lethal weapon systems are employed.

Non-lethal technology has been called Pandora's box. n37 In simple terms, there is a fear the United States will develop technology which may in [\*12] the future be used against it. n38 This criticism fails to take into account that non-lethal technology is not solely developed or controlled by the United States. Around the world, many nations are creating non-lethal weapon systems. In reality, those who voice this criticism have a fear of the unknown, and by implication, feel that non-lethal technology should not be developed. This represents a very naive and irresponsible position. There will always be foreign governments and terrorists groups who will mimic the non-lethal technology as it is developed, but this problem is not new. Every effective weapon system in the world has been copied. The solution to this problem is for the United States to maintain its technological edge on the battlefield by pursuing new non-lethal technology and by controlling the deployment of that technology.

Non-lethal technology has been criticized because it raises unrealistic expectations that battles may be fought without death, serious injury or property damage. n39 This criticism is similar to the earlier discussion involving the term "non-lethal." As was indicated, this will continue to be a problem since the potential for death, serious injury and property damage is always present whether non-lethal or lethal weapon systems are used. However, the likelihood of such results is significantly reduced when non-lethal technology is employed.

A commonly voiced viewpoint about non-lethal weapons is that any money budgeted for them is money wasted or money that could be better spent to improve the precision and accuracy of lethal weapon systems because non-lethal technologies do not work. Those who support this criticism have been misinformed because non-lethal systems really do work. They also have failed to consider the need for more humane weapon systems, and the U.S. military's need to maintain technological superiority on the battlefield. The current economic, diplomatic and political demands shaping U.S. policy will require future military operations to minimize casualties not only to U.S. military forces but also to civilian property and noncombatant personnel (civilians). n40 In [\*13] a very cynical fashion, the following observation brings into focus this very point since the use of non-lethal weapons could be "extremely valuable in intervention where the 'CNN effect' puts a great premium on minimizing or eliminating casualties, particularly among non-combatants." n41 In reality, the cost of non-lethal technology is minuscule in comparison to the money currently budgeted for lethal weapon systems. n42 It might even be argued that non-lethal weapon systems are very cost

effective because they give the commander additional capabilities for mission accomplishment at a minimal cost.

### **E. Categories of Non-Lethal Weapon Systems**

Today, the increase in the number of non-lethal technologies and their diverse capabilities continues at a rapid pace. Since the growth in new non-lethal technology appears to be unlimited, it presents a unique challenge to the newly established Joint Non-Lethal Weapons Directorate (JNLWD).<sup>n43</sup> The JNLWD was established on July 7, 1997, through the aggressive efforts of the Marine Corps, the executive agent for the Department of Defense Non-lethal Weapons Program.<sup>n44</sup> The purpose behind the creation of the Directorate was to develop a clearinghouse for unclassified non-lethal technology information, to serve as a lightning rod for all Department of Defense non-lethal weapons matters and to create one single governmental entity responsible for coordinating the actions ongoing in the non-lethal technology arena.

Accomplishing these lofty goals will not be easy. The first challenge for the JNLWD is to organize the non-lethal technologies that are available and those that are under research in a manner that permits optimum support to each of the military services. So far, the Directorate has reviewed all currently available non-lethal technologies to eliminate those systems that seem impractical for military use. According to the Director of the JNLWD, an [\*14] initial screening of over one hundred different non-lethal technologies resulted in the approval of 14 separate multiservice programs.<sup>n45</sup> In the future, the JNLWD may request recommendations on specific non-lethal technologies from the newly established Institute for Non-Lethal Defense Technologies at the Applied Research Lab of Pennsylvania State University.<sup>n46</sup>

The next step facing the Directorate is to divide the screened non-lethal weapon systems and those still under research into major categories based upon their primary use or capability. For this type of division to be helpful the number of primary categories should be few in number, broad in scope and simple to understand. Under each primary category, sub-categories may be developed. Using this type of structure, the current non-lethal technologies available or under research may be lumped into three primary categories: (1) technologies that attack or enhance material systems and infrastructure; (2) technologies that attack an adversary's information systems or enhance intelligence gathering, surveillance and security; and (3) technologies that attack or enhance human frailties and functions. Although the potential capabilities of some non-lethal weapon systems might allow their placement in multiple categories or sub-categories, they have been placed under the primary category and sub-category which best describes their usage. In addition, the different types of missions should be identified where the non-lethal weapons of each category will be most useful.

#### **1. Technologies That Attack Or Enhance Material Systems And Infrastructure**

This primary category involves those non-lethal technologies that have the capability to cause degradation or enhancement to equipment, material systems and infrastructure. Some of the missions where the capability represented by these non-lethal weapons may be very useful are: counterdrug; peacekeeping; peace enforcement; humanitarian assistance; denial of movement; sanction enforcement; counter-terrorism; countersniper; counterterrorist; electronic attack; movement to contact; ground attack; close [\*15] air support; offensive air missions; pursuit; riverine assault; strategic attack; suppression of enemy air defense; air defense; barrier and mine warfare; countermechanized; counterpursuit; amphibious assault; facilities seizure; search and rescue; raids; disabling command and control communications; industrial sabotage; aviation sabotage; vehicle disablement; delaying enemy advance or attack; disabling vessels, submarines and naval mines; and counterproliferation of weapons of mass destruction. Non-lethal technologies available or under research that exhibit the capability to degrade or enhance equipment, material systems and infrastructure under this category would include:

\* Acoustic (Acoustic bullets that cause resonant oscillations in physical structures) <sup>n47</sup>

\* Battlespace Affectors (potential replacement for conventional lethal landmine) <sup>n48</sup>

\* Biodeterioration (micro-organisms which attack specific materials) <sup>n49</sup>

- \* Caltrops (metal jacks used to puncture tires on motor vehicles) n50
- \* Combustion Modifiers and Fuel Viscosifiers (chemical additives which change fuel characteristics) n51
- \* Combustible Dispersants (substances which burst into flame or explode when contact with the treated surface is made by motor vehicles or personnel) n52
- \* Computer Viruses (to cause the malfunction of automatic data processing systems) n53
- \* Concentrated Electromagnetic Pulse (a non-nuclear generated pulse disrupting electronic equipment including motor vehicles with electronic ignitions) n54
- [\*16] \* Conductive Ribbons (carbon fibers used to cause electrical disruptions and short out power grids) n55
- \* Defoliants (remove vegetation that could be used for concealment) n56
- \* Depolymerizers (polymers that dissolve adhesives) n57
- \* Electronic and Optical Jamming (electronic warfare devices)
- \* Filter Clogging Materials (airborne materials designed to clog the air filters of combustion engines) n58
- \* High Power Microwave Fields (pulsed microwave beams to destroy electronics) n59
- \* Lasers Systems (targeting and guidance systems that detect, determine range, track, and guide, as well as, systems that blind or destroy enemy optical sensors)
- \* Liquid Metal Embrittlement (to cause treated metal to crumble and disintegrate) n60
- \* Motor Vehicle Electrical Arrestors (an electrical charge is directed at a motor vehicle as it passes which causes it to stop) n61
- \* Motor Vehicle Obscurants (opaque covering to block windows and sensor lens) n62
- \* Motor Vehicle Taggers (a projectile delivered transmitter tag with polymer adhesive to allow a vehicle to be tracked) n63
- \* Soil Destabilizers (changes soil properties reducing traction for motor vehicles) n64
- \* Super Adhesives (used to prevent movement by motor vehicles and personnel) n65
- \* Supercaustics or Super Corrosives (dissolve most metals, plastics, rubber, polymers, and glass) n66
- [\*17] \* Superlubricants (chemicals which make surfaces extremely slippery) n67
- \* Weather Modification (such as inducing rainfall by the chemical seeding of clouds) n68

## **2. Technologies That Attack Or Enhance Intelligence Gathering, Surveillance Or Security**

This primary category involves those non-lethal technologies that have the capability to either attack an adversary's information based systems or to enhance intelligence gathering, surveillance and security. Some of the missions where the capability represented by these non-lethal weapons may be very useful are: location and identification of weapons of mass destruction; air reconnaissance; surface reconnaissance; aerial surveillance; rear area security; security for enemy prisoner of war (EPW) camps; and protection and security for base camps and installations. Non-lethal technologies available or under research that exhibit the capability to attack or enhance information based systems, intelligence gathering, surveillance and security under this category would include:

- \* Collection and Decipherment of Scrambled Communication (decoding of sophisticated electronic communications) n69
- \* Computer Moles/Worms (computer programs designed to penetrate into enemy automatic data processing systems and report back specific datum) n70
- \* Electronic Smart Dust (microelectromechanical airborne particles that relay reconnaissance information) n71
- \* Ground Penetrating Radar (system designed to detect subsurface man-made structures) n72
- \* Robotic Land Probes (systems capable of gathering and relaying information of surface activity)
- \* Seeing Through Walls (radar and acoustic systems that provide images of what is located behind walls) n73
  - Nonimaging Portable Radar (portable acoustic system designed to detect motion behind nonmetallic walls) n74
- [\*18] \* Unmanned Aerial Vehicles (UAV) (used to gather information of surface activity from the air through cameras, infrared sensors, radars, microprocessors and transmitters) n75

## **3. Technologies That Attack Or Enhance Human Frailties And Functions**

This primary category consists of those non-lethal technologies that are capable of attacking or enhancing human frailties and functions. It is by far the largest of the three primary categories. Some of the missions where the capability represented by these non-lethal weapons may be very useful are: riot control (civil disturbances); public safety; assistance to law enforcement (siege or dynamic entry); curfew enforcement; hostage release; isolation of insurgents; counter-ambush; ambush; denial of enemy base areas; facility denial; escape and evasion; and psychological. Many of the non-lethal technologies that fall into this category were initially developed for use by law enforcement personnel. Non-lethal technologies available or under research that exhibit the capability to attack or enhance human frailties and functions under this category would include:

- \* Acoustic Pulses (high-frequency sound pulses designed to cause blunt-object trauma) n76
- \* Claymore Mine With Blunt Object Projectiles (kinetic system designed for crowd control and security that propels blunt impact objects such as sting balls) n77
- [\*19] \* Counter Sniper Systems (electronic systems which allow pinpointing of a sniper and return fire within 2 seconds) n78
- \* Curdler Unit (a system designed to produce a very loud shrill noise which is used to irritate and disperse rioters) n79
- \* Dazzling Lasers (lasers designed to cause temporary blindness from 12-24 hours)
- \* Deference Tones (systems used to project a voice or sound to another location) n80
- \* Disinformation Campaigns (techniques designed to influence or persuade groups against their interest) n81
- \* Electrical Water Stream (systems using charged water stream to immobilize or stop an adversary) n82
- \* Entangling Nets (sticky nets and high voltage nets fired from a 40 MM grenade launcher to stop or subdue a fleeing or disorderly individual) n83
- \* Foaming Agents (designed to impair mobility and vision) n84
- \* Grenade Launched Projectiles (same rounds below may be delivered by hand thrown means)
  - Multiple Baton Wood Round (used to create forced entry diversions) n85
  - Multiple Foam Rubber Round (used to stun or knock down an adversary) n86
  - Stinger Round (round containing multiple rubber balls used to stun or knock down an adversary) n87
- \* Holographic Projections (used for misinformation campaigns) n88
- [\*20] \* Incapacitating or Calmative Agents (biomedical agents that may be absorbed through the skin or delivered by airborne means designed to incapacitate) n89
- \* Infrasound (low-frequency sound designed to cause disorientation and physical discomfort) n90
- \* Laser Protection (system designed to protect against lasers by blocking the wavelength, reflecting through optical coatings or absorbed using dyes) n91
- \* Markers (systems designed to identify personnel through some form of marking) n92
- \* Mind Control (subliminal visual and audio messages) n93
- \* Obscurants (systems designed to disorient and to obscure observation) n94
- \* Odoriferous Agents (non-toxic systems designed to create extremely unpleasant odors) n95
- \* Optical Munitions (flash systems designed to temporarily blind or disorient) n96
- \* Photic Driver (a system designed for crowd control which uses ultrasound and flashing infrared lights to penetrate closed eyelids) n97
- \* 12 Gauge Shotgun Shell Projectiles
  - Bean Bags (nylon bean bags designed to stun or knock down an adversary) n98
  - Hardwood batons (wooden projectiles used to stun or knock down adversary) n99
  - Rubber Pellets (rubber pellets fired at high velocity to stun or knock down an adversary) n100
- [\*21] \* Riot Control Agents
  - Chlorobenzylidenemalonitrile (CS) gas (used to cause disorientation and crowd control) n101
  - Oleoresin Capsaicin (OC) (a naturally occurring inflammatory found in cayenne pepper used to cause disorientation and crowd control) n102
- \* Rubber Bullets (rubber projectiles designed to inflict pain without penetrating) n103
- \* Sponge Grenade Round (40 MM foam round used to stun or knock down an adversary) n104
- \* Stun Guns (systems that use electric shock to stun and immobilize) n105

- \* Voice Synthesis/Morphing (system designed to produce the voice and image of an adversary used to deceive or gain access) n106
- \* Vomiting Agents (agents designed to cause nausea and vomiting by personnel) n107
- \* Ultrasound (an acoustic system using high frequency sound whose wavelength is outside the audible band) n108
- \* Water Cannon (system designed to produce a stream of water under very high pressure for crowd or riot control) n109

### III. Selecting Non-Lethal Weapon Systems

In today's military, there is always pressure to do things faster, but as experienced commanders know, it inevitably takes time to reach sound conclusions on important matters. When the issue involves what non-lethal weapons systems to take on an operation, the commander must be prepared to deal with a very time consuming selection process to determine the particular system to employ.

#### [\*22] A. Determining the Capability Needed

As illustrated by the actions taken by General Zinni and his staff during Operation United Shield, the selection and acquisition of non-lethal weapon systems can be difficult. The starting point for any commander is to determine the specific capabilities that are necessary to accomplish the expressed and implied taskings contained within the mission. Because these taskings may call for several different capabilities, the commander may require multiple non-lethal weapon systems.

When determining the non-lethal capabilities needed, the commander should also look at both positive and negative oriented capabilities for each of the primary categories. This means that commanders should be as concerned about finding non-lethal capabilities that would enhance or improve the effectiveness of their personnel as they are about finding capabilities that will stymie the adversary's personnel. As an example of positive capabilities for operations in non-English speaking countries, the commander might look for non-lethal technology that would provide translation aid to assigned personnel or for increased force protection and life-saving through a non-lethal technology that warns force personnel of danger by identifying approaching individuals who are carrying concealed weapons or explosives. n110

#### B. Knowledge of Systems Available

Next, the commander must become familiar with the non-lethal weapon systems in the U.S. inventory, as well as, the non-lethal technology currently being used in the civilian community. A solid working knowledge of the non-lethal technologies available is essential to the commander's selection process. At first blush, this appears to be an overwhelming task; the critical elements for the commander are the expenditure of valuable time and personnel assets to develop the requisite knowledge. In addition to these issues, another stumbling block to the commander involves the cloak of secrecy that usually surrounds new non-lethal weapon systems. Since most commanders are unaware of even the unclassified non-lethal systems, adding a cloak of secrecy erects another artificial barrier which must be overcome. The classification of emerging technology is the military's response to the fear that if a new system becomes widely known, hostile forces will develop countermeasures or will copy the system for use against U.S. forces. Because of this, the commander may be unaware of systems that are highly classified. Currently, the U.S. weapons inventory has only a modest non-lethal capability. Many of the more exotic capabilities are still five years or more away from being approved for use. n111

[\*23] For Operation United Shield, the I MEF staff faced the same time constraints, manpower constraints and secrecy problems in determining which non-lethal weapon systems were to be selected. n112 The magnitude of the effort required to obtain the necessary knowledge and information exposed the seriousness of this problem. Since there was no Department of Defense office responsible for the compilation or dissemination of information concerning non-lethal technology, General Zinni's staff was forced to seek information from a variety of military and civilian sources as well as ongoing research projects. For future commanders, Operation United Shield highlighted the issue of

where does the commander, faced with a time sensitive operation, obtain the knowledge necessary to select and acquire suitable non-lethal weapons?

The Marine Corps, as the executive agent for the Department of Defense Non-Lethal Weapons Program, has made tremendous strides toward streamlining the selection and acquisition process through the establishment of the JNLWD. As the JNLWD develops its niche, it hopes to become the central clearing house for compiling and disseminating information on non-lethal technologies. n113 The Directorate has been made more accessible to commanders and their staffs through a Joint Non-Lethal Weapons Program Website with a comprehensive non-lethal weapon systems database. n114 Furthermore, the Marine Corps has negotiated a Memorandum of Agreement with the other military services and the United States Special Operations Command to use the JNLWD to coordinate the implementation of non-lethal weapons programs. Under this Memorandum, the JNLWD's oversight only focuses on programs at the tactical level and does not extend to those service programs whose goal is to achieve a wider (theater/strategic level) military objective. n115 During the Joint Non-lethal Weapons Standing Rules of Engagement Development Conference on January 7, 1998, the Director of the JNLWD indicated a new initiative was being sponsored by the JNLWD to modify this Memorandum of Agreement. n116 The proposed modification would [\*24] allow oversight of all non-lethal weapons programs at the strategic as well as the tactical level. This Memorandum of Agreement also establishes the procedures required in Public Law 104-106, Section 219 - "Nonlethal Weapons Study" by making the Commandant of the Marine Corps, in conjunction with the other military services, Department of Defense agencies and the Unified CINCs, the primary conduit for reviewing, coordinating, and integrating new non-lethal weapons programs and making recommendations on those programs to the Under Secretary of Defense (Acquisition and Technology). n117

### **C. Other Selection Factors**

Once the desired capabilities have been determined and the availability of the systems which can provide those capabilities have been ascertained, other factors to be considered in the selection process are training, logistical support (mobility), quantity and spare parts requirements, combat load, environmental limitations, characteristics of the system, and cost. The training required for the use of some non-lethal weapon systems is not only difficult and expensive, but also very time consuming. For this reason, it may be important to know whether the training for the system is compatible with or complements the training the unit has scheduled for the traditional lethal weapon systems. n118 In addition, to evaluate the full impact of the training, the commander may need to know whether or not a special land based training facility will be required. If such a training facility is needed, additional time and money would need to be set aside to meet this requirement since this training could not be accomplished during normal transit (either by ship or by air) to the area of operation. n119

Similarly, logistical support for the non-lethal weapon system selected is important. In simple terms, the commander must consider the system's mobility. For most operations, commanders will have a limited amount of aircraft lift and ship's cargo space available to move their units and equipment into the area of operation. Due to these space constraints, the size of the non-lethal logistical footprint becomes crucial. To further complicate the space constraint issue, there is normally no one who has had prior experience with moving that particular system, handling the size of the system (to include the number of individual systems needed by the unit along with their spare parts), and managing the special transportation restrictions. n120 For example, the commander of a Marine Expeditionary Unit (MEU) might have to decide whether to leave behind an artillery piece from its normal combat table of [\*25] equipment (T/E) in order to accommodate the space needed to support a non-lethal weapon system.

The importance of selecting a non-lethal weapon system which has adequate or sufficient spare parts cannot be overstated. No weapon system should ever be fielded without the necessary means to replace or repair those parts subject to malfunction or breakage. For non-lethal weapon systems, this type of information will have greater significance if the manufacturer has a limited number of spare parts in stock and the manufacturing process for the spare parts is a lengthy or costly process. n121

Another important element to be considered for ground forces during the selection process is the combat load. Combat load refers to the required items each military member of the ground force must carry for the operation. Included in most combat loads are such items as a pistol or rifle, ammunition, helmet, flak jacket, gas mask, poncho, sleeping bag, water, food, first aid items, maps, compass, bayonet, pocket knife, lighter, field coat and additional clothing. These items are normally carried within an Alice pack or on an h-harness or a war belt. If the non-lethal weapon selected would require each Soldier or Marine to carry a substantial increase in volume or weight, it could affect unit maneuverability and foot speed.

Some non-lethal weapons are more effective than others in certain types of terrain, environments or weather conditions. If these limitations exist, the commander needs to be aware of them. During the selection process, the commander should concentrate on those systems that work best in the expected combat environment for that operation. In addition, the commander needs information about the durability of each system (including components) that may be selected. The selection process should exclude those systems which are not reliable under austere conditions or have historical track records indicating frequent malfunction or breakage. n122 Those non-lethal weapon systems that require a relatively sterile environment to function should ordinarily not be selected.

The characteristics of the non-lethal weapon systems being considered for selection are also critical. The commander needs detailed information on the following traits for each system under consideration: nature and duration [\*26] of effect, delivery system requirements, "standoff" capability, n123 area of coverage, range, weight, interoperability with other lethal and non-lethal weapons, manpower requirements, and maneuverability. Without this information, the commander is making the selection in the dark. A comparison of these traits for multiple systems which offer almost the same capability gives the commander a valuable decision making tool.

Given today's shrinking defense budgets, cost will always be an important selection factor. If "operation and maintenance" funding will be used, the commander may require the staff to do a cost benefit analysis of those non-lethal weapon systems that are being considered. This will provide more objectivity on the cost issue. A cost benefit analysis that compares the specific cost of each system with the capability provided by each may give the commander useful insight into which systems provide the optimum utility for the money spent.

#### **D. Requirement For Legal Review**

Aside from the selection issues already discussed, the non-lethal weapon systems selected by the commander for use on the operation may not have been approved for inclusion within the U.S. weapons inventory. This problem involves the requirement for a legal review. n124 No weapon system may be used by U.S. military forces in armed conflict unless it has successfully completed the legal review process. All weapon systems included within the U.S. weapons inventory have successfully passed a legal review. Those systems which fail to pass the legal review are considered illegal weapon systems and may not be used by U.S. military forces. The legal review required for non-lethal weapon systems is the same as the review required for lethal weapon systems. The purpose for the legal review of munitions and weapon systems is to ensure that their intended use is consistent with the obligations of the United States under customary international law and the law [\*27] of war treaties or arms control agreements to which the United States is a party. The review is premised upon the following three international law principles: (1) "the right of belligerents to adopt means of injuring the enemy is not unlimited;" n125 (2) "it is especially forbidden . . . to employ arms, projectiles, or material calculated to cause unnecessary suffering;" n126 and (3) "indiscriminate attacks are prohibited. Indiscriminate attacks are: . . . those which employ a method or means of combat which cannot be directed at a specific military objective." n127 These three principles have become the basis for the two fundamental concepts now used to evaluate all weapon systems which the United States plans to use during armed conflict. The first concept prohibits a nation engaged in armed conflict from employing a weapon system that is designed to cause unnecessary suffering. The second forbids the use of a weapon system which cannot be directed specifically against a military objective and is therefore indiscriminate in its effect.

Since the non-lethal weapon systems purchased off-the-shelf for Operation United Shield were not contained in the

U.S. weapons inventory, no prior legal review had been conducted on them. For General Zinni and his staff, the legal review requirement became a major obstacle since those systems could not be used until the legal review was complete. n128 The off-the-shelf [\*28] weapon systems employed for Operation United Shield also highlighted the potential problem of purchasing weapon systems prior to the completion of the legal review. If a purchased system failed to pass the legal review, the command would be in the awkward position of having spent taxpayer dollars on a capability that it could not legally employ.

Since the legal review process is typically lengthy, it should be undertaken in conjunction with the acquisition process for each new weapon system. To avoid future problems such as those faced by General Zinni, a new Marine Corps order has been published which sets forth the uniform procedures to be followed by all Marine Corps commanders who desire to acquire and use non-lethal weapon systems. n129 This order distinguishes between non-emergency and emergency requests, the latter providing for an expedited review. n130 The reason for this distinction is to help the commander who is facing a time sensitive operation to select and acquire those non-lethal systems needed.

On December 4, 1995, to meet the demands for emerging and developing technologies and to support new contingencies, such as Operation Joint Endeavor, n131 the U.S. Army Material Command Deputy Chief of Staff for [\*29] Research, Development and Acquisition, directed the establishment of a new technology office. n132 This office became known as the Bosnia Technology Integration Cell (BTIC). In light of the success of the BTIC, the Deputy Assistant Secretary of the Army decided to institutionalize this office within the Army Material Command. In July 1996, the BTIC officially became the Quick Response Office (QRO). n133 Like Marine Corps Order 3430.7, the QRO has an emergency response and acquisition capability regarding all types of material (to include non-lethal weapons). n134

#### **IV. Training To Use Non-Lethal Weapon Systems**

Training to use non-lethal weapons is paramount, for "the instruments of battle are valuable only if one knows how to use them." n135 On the macro-level, each military service and the CINC, United States Special Operations Command has the responsibility to prepare, organize, supply, and equip its service members so that they are capable of accomplishing their mission. Incorporated within this responsibility is the duty to "ensure the development and implementation of employment concepts, doctrine, tactics, training, security procedures, and logistical support for . . . non-lethal weapon systems." n136

[\*30] In the future, training with non-lethal weapons may be considered routine, but at this time it presents a unique challenge. A part of this challenge is reaching the same level of proficiency with non-lethal weapon systems that exists for lethal weapon systems. To accomplish this training goal will be one of the commander's most difficult responsibilities. Proper instruction and practice are the cornerstones to operational success, and commanders must work their way through the training process. There is no short cut. Unit readiness requires the unit which will use a non-lethal weapon to train with that system.

The training aspect of the non-lethal weapon equation can be lengthy and costly. In most cases, both the military units and the instructors will have, at best, only limited experience with the system. Furthermore, developing the appropriate training package will take time. In fact, most training packages will be the result of trial and error to discover what works well and what does not. Commanders can expect the overall training time for their units to increase in direct proportion to the time needed to train for the use of the non-lethal weapon system. This increase simply reflects the reality that the unit must go through the standard lethal weapon system training as well as the new non-lethal weapon system training.

The training program for each non-lethal weapon system should consist of two parts: one part which covers general training matters n137 for all members of the unit and the second part, a more intense training package for the specific members who will actually employ the system. The instruction contained within this intense training package should

include the following:

- \* the function and inner workings of the weapon system n138
- \* tactics, techniques and planning considerations for the system n139
- \* special equipment, transportation or support required for its use n140
- \* training directed toward a specific mission capability n141
- [\*31] \* actual practice using the system n142
- \* the normal malfunctions or break points for the system n143
- \* maintenance, repair procedures and points of contact for technical information about the system and for ordering or obtaining spare parts n144
- \* advanced training for the officers and staff noncommissioned officers who will be in charge or control of the weapon system

General Zinni's staff worked extremely hard to create a military training program for the non-lethal weapons selected for use during Operation United Shield. As a starting point, his staff looked at the training used by the local police and other law enforcement agencies. Since crowd control was the sub-category capability for which the non-lethal weapons for this operation were used, the training concentrated on the types of crowds or mobs, psychological factors relating to crowds and mobs, tactics for dismounted Marines, force multiplying tactics, and the process of rapid decision making. n145

Using the training program prepared for Operation United Shield as a starting point, the I MEF, Special Operation Training Group (SOTG) worked with Army military police at Fort McClellan, Alabama to build a standard predeployment non-lethal weapons program of instruction (POI) for the capability of crowd control. This POI was approved by the Marine Corps, and in May 1996, a special Non-lethal Weapons Mobile Training Team was assembled to provide training on this POI to all the MEU instructors in I MEF and II MEF. n146 Each MEU in I MEF and II MEF now utilizes this POI as a [\*32] part of their special training. n147 A standardized deployment kit containing non-lethal weapons for use by the MEUs was developed as part of the POI. n148 The original POI consisted of 119.5 hours of instruction. The POI was divided into 41 hours of lecture, 55.5 hours for practical exercise 1, 18 hours for practical exercise 2, and 5 hours for tests. n149 All together this POI takes about 10 days. In addition, the special Non-lethal Weapons Mobile Training Team has used this POI to train and certify non-lethal weapon instructors for the U.S. Support Group in Haiti and the Army's 5th Corps. n150

Although a solid training package for the use of non-lethal weapons for crowd control has been developed, no comparable training packages exist for other capabilities. This represents a significant obstacle, and it could provide commanders with a rationale for employing non-lethal systems only for crowd control. To avoid this problem, training packages for the use of non-lethal weapon systems for capabilities other than crowd control must be developed. The Commandant of the Marine Corps, as the Executive Agent for the Department of Defense Non-lethal Weapons Program, is attacking this problem through joint working groups. The success of these groups will be judged by their ability to organize, coordinate, and stimulate the development of standardized training programs.

If the rapid expansion of complex non-lethal weapon systems continues, it could dictate a need for reorganization within the military services. One potential change might be the requirement for more detailed and expansive training on many different types non-lethal weapon systems in order to provide commanders with the in-house expertise needed for a variety of [\*33] capabilities. Accomplishing this detailed training may require the military services to establish a non-lethal weapon military occupational specialty (MOS). n151 Military personnel having a primary or secondary MOS in non-lethal weapons would become the principal advisors to the commander concerning the selection, training and application of these weapon systems. This would be welcomed by most commanders in view of the difficulties discussed earlier in obtaining and organizing the necessary information. In addition, having military personnel with a non-lethal weapons MOS would probably make commanders more inclined to use and train with non-lethal weapons during exercises, thereby causing an overall increase in their unit's proficiency regarding those systems. Another benefit would be the opportunity to cross-train other military personnel within the unit.

The military services must also examine how best to ensure that non-lethal weapons will be not be overlooked but included in all operational planning. If these systems are not considered in the early stages of planning, the commander may not receive the best recommendations on the potential courses of action to accomplish the mission. Additionally, the use of non-lethal weapons must be integrated into the targeting process. This may require the internal staff functions of the operations directorate to be reorganized to allow for the creation of a non-lethal weapons cell within the fires coordination unit. Members of this cell would become vital to the targeting analysis board. Without some type of reorganization, the staff preparing the means of striking future targets is less likely to consider the application of non-lethal systems.

## V. Employing Non-lethal Weapon Systems

Because non-lethal weapon systems have broad application across the entire spectrum of conflict, they may be used for all military operations and will, without doubt, contribute to success in future armed conflicts. During armed conflict, battlefields may be shaped through operations which employ non-lethal weapons. Non-lethal weapons may be used in tactical targeting to fight the close battle; in strategic targeting to fight the deep battle; in an urban environment where lethal indirect fire weapons may be impractical; as a force multiplier for rear area security by enhancing barriers to bases, supply depots, and other command locations; and as a tool to manage and control EPWs, civilian internees, and refugees.

[\*34] With the demise of the former Soviet Union, the likelihood of a global war has diminished substantially. Now, the most likely use of a non-lethal weapon system will come during a military operation other than war (MOOTW). n152 One must remember a MOOTW is not always conducted under peaceful circumstances. World hot spots resulting from cultural or ethnic unrest, armed insurgencies, religious disputes, and unstable political leadership often precipitate a MOOTW. Frequently, the most difficult aspect of a MOOTW is to provide humanitarian assistance and protection to the omnipresent civilians in volatile and unpredictable surroundings. When lethal force instead of non-lethal force is used by those who have come in the name of "humanity," the complexion of the situation changes. The forces providing aid may no longer be viewed as friends and allies but instead as oppressors and aggressors. Without non-lethal weapons to expand the options available on the low side of the use of force continuum, the commander faces the dilemma of doing nothing or using lethal force. Non-lethal weapons may be used to fill the gap between diplomatic pressure, economic sanctions or a military show of force and the use of lethal force.

For the United States, a MOOTW has become a common means of responding to a world crisis. For example, when Libya confronted the United States indirectly in the Gulf of Sidra, n153 the United States responded through a type of MOOTW known as a "freedom of navigation operation." MOOTWs have been used to respond to a loss of government control and internal violence [\*35] through "noncombatant evacuation operations." n154 The U.S. military is currently conducting a type of MOOTW known as a "peace enforcement operation" in the former Yugoslavia. n155 In addition, the U.S. military has conducted MOOTWs to provide humanitarian assistance in response to domestic and foreign disasters n156 and to restore democracy. n157

Although the employment of non-lethal weapon systems may be similar from one operation to the next, certain key elements within the process will change based on the mission and the threat level. The most important of these elements, the tactics for utilizing non-lethal weapons and the rules of engagement (ROE), are closely entwined with the expressed and implied taskings of the mission and the political policy upon which the mission is grounded. There are two potential problems that could have a tremendous impact upon the tactics for employing non-lethal weapons and the ROE. The first is "mission creep," n158 and the second is a change to the threat level. If there is a change to the mission (through mission creep or otherwise) or to the threat level, a totally different operation may result. Faced with a change to the mission or to the threat level, a commander must go back to the drawing board to determine whether modifications are needed to the make-up of the military force, to the lethal and non-lethal weapon systems selected (to include reviewing the tactical plan for employing weapon systems) and to the ROE for mission accomplishment.

### [\*36] A. Tactics For the Employment of Non-lethal Weapons

The development of the techniques and methods for utilizing non-lethal weapon systems is in its infancy. Commanders should not view the employment of non-lethal weapons as a panacea, but instead as a dual edged sword. On the positive side, the utilization of non-lethal weapons provide the commander with exciting new force options and capabilities; however, on the negative side, they create difficult employment problems. To overcome these problems, commanders must draw upon the abilities of their staffs and their own prior experience, education and skill to create a sound tactical operation plan which allows the advantages of the non-lethal capabilities to be exploited while at the same time minimizing the danger to the force. As always, careful preparation and planning are the key. As stated by Ferdinand Foch:

I don't believe in [genius]. A battle is a complicated operation, that you prepare laboriously. If the enemy does this, you say to yourself I will do that. If such and such happens, these are the steps I shall take to meet it. You think out every possible development and decide on the way to deal with the situation created. One of these developments occurs; you put your plan in operation, and everyone says, 'What genius . . .' whereas the credit is really due to the labor of preparation. n159

Four potential options have been suggested by Nick Lewer and Steven Schofield as military force structures for employing non-lethal weapon systems. Those are:

1. a military force equipped only with non-lethal weapons
2. a military force equipped with non-lethal weapons and lethal weapons systems for self-defense only
3. a force consisting of two units: the first with non-lethal weapon systems only, the second held in close reserve and equipped with lethal weapon systems to be deployed if required
4. a force with fully integrated lethal (defensive and offensive) weapons and non-lethal weapons. n160

[\*37] It is apparent that 2, 3, and 4 are closely related since all three propose the use of non-lethal with lethal weapon systems. From a commander's viewpoint, these four structures may be synthesized into two tactical methods for employing non-lethal weapons: their use as stand-alone systems, and their use in conjunction with lethal systems.

### **1. Non-lethal Weapons As Stand-Alone Systems**

The Department of Defense has consistently viewed the use of non-lethal weapons as a means of enhancing the military effectiveness of lethal weapon systems. n161 This is reflected in the new Department of Defense non-lethal weapons policy which states "non-lethal weapons may be used in conjunction with lethal weapon systems to enhance the latter's effectiveness and efficiency in military operations. This shall apply across the range of military operations to include those situations where overwhelming force is employed." n162 Although this policy stops short of specifically prohibiting the use of a non-lethal weapon as a stand-alone system, it has caused commanders to shy away from this type of use. In light of the Department of Defense non-lethal weapons policy, the question becomes: should non-lethal systems be used solely as a means to enhance lethal weapon systems? The answer to this question is a qualified no. The use of non-lethal weapons only in conjunction with lethal weapons dramatically impacts upon the commander's flexibility. This does not mean non-lethal weapons should always be used as stand-alone weapon systems. In fact, the tactical decision about whether to employ a non-lethal weapon system in isolation should be made by the on-scene commander, and only after all the information available regarding the mission, threat level, and operational environment have been evaluated.

At this point, it is well to emphasize that "the availability of non-lethal weapons shall not limit a commander's inherent authority and obligation to use all necessary means available and to take all appropriate action in self-defense." n163 This guidance, which restates the fundamental self-defense [\*38] principle contained in the Chairman, Joint Chiefs of Staff Standing Rules of Engagement, n164 is critical for it reminds commanders that they not only have the inherent authority but also the responsibility to ensure their commands and other U.S. military forces in the vicinity are properly defended. These self-defense responsibilities will play a major part in determining whether (for a certain mission, a certain threat level and a certain operational environment) the use of a non-lethal weapon system as a

stand-alone weapon is appropriate.

Good intelligence concerning the expected military and civilian opposition to be encountered is a primary element in determining whether it is appropriate to use a non-lethal system as a stand-alone weapon. Non-lethal weapon systems should never be used as stand-alone weapons in operations where opposition forces have been declared hostile, the threat level is high, or the mission involves a region of the world where armed conflict has just ended, is continuing, or is about to start. With these exclusions, the window of opportunity for the use of non-lethal systems as stand-alone weapons is significantly narrowed to only a peacetime MOOTW which involves disaster relief or humanitarian assistance. In sum, non-lethal weapon systems should rarely, if ever, be employed as stand-alone weapon systems.

## **2. Non-lethal Weapons in Conjunction With Lethal Weapon Systems**

The most common and logical method for employing non-lethal weapon systems is in conjunction with lethal weapons. This provides several advantages. One is the overall synergistic effect on the operation. Another advantage is the ability to use a level of force below lethal force while retaining the necessary capability to provide for unit self-defense. n165

However, using these weapon systems in combination presents one very difficult problem. That problem involves developing a tactical plan that allows for the employment of a non-lethal weapon system prior to the use of a lethal weapon system. Such a plan presents a unique challenge since it not only requires a priority in weapon system usage but also requires the flexibility to permit a gradual or dramatic increase in force when necessary in self-defense or for mission accomplishment. One tactic for ensuring adequate self-defense for those U.S. military members who will be utilizing a non-lethal weapon system is to provide lethal cover. In the past, this has been accomplished by placing snipers with communication assets in key overlook positions, a tactic [\*39] used by General Zinni during Operation United Shield. In Somalia, Marines using non-lethal weapon systems were under constant observation and in constant communication with Marines employing lethal weapon systems. General Zinni trained his force so that the transition from a non-lethal level of force to a lethal level of force could be made swiftly and efficiently. n166

Non-lethal weapons when used in conjunction with lethal weapon systems greatly improve the perimeter security or defensive security for United States embassies, military bases and forward deployed operational forces. Two concerns which arise when using non-lethal weapons with lethal weapons for defensive security are predictability in regard to the order of employment among the several non-lethal and lethal weapons being used and whether it is advantageous to use non-lethal weapon systems in an overt manner, a covert manner, or both. To avoid predictability, the commander may desire to fluctuate the use of certain non-lethal and lethal systems within his defensive perimeter. In addition, it is important to note that both of these concerns are influenced by the degree of coordination within the command. To achieve the maximum effectiveness for those non-lethal weapon systems employed with lethal weapon systems, they must be deployed as part of a coordinated effort by the military forces of the joint or combined operation. n167

The employment of non-lethal weapons in conjunction with lethal weapon systems can dramatically improve the offensive capabilities of a commander's unit. Since non-lethal weapons may be utilized as "battlespace affectors," n168 they offer commanders excellent tools to dominate future battlefields by allowing them to shape and control the battlespace, by enhancing their ability to maneuver their forces to a position of advantage and by improving their flexibility through increased options. Certain non-lethal systems when used with lethal systems can become force multipliers which can temporarily disable some or all of the adversary's personnel or literally stop the adversary's jeeps, trucks and armor in their tracks. n169 With the ability to influence the conflict as described above, the commander could bring about the swift capitulation and surrender of an adversary's forces.

For controlling volatile crowds or mobs, the tactic of using lethal cover works well. By placing observers with lethal weapon systems in strategic locations, professional agitators, n170 [\*40] mob leaders n171 or activists n172 may be identified, photographed and kept under careful scrutiny while non-lethal means are applied to disperse or

subdue the crowd. If lethal force is employed against those applying non-lethal force, the covering unit may be used to detain or capture the individuals responsible for the acts of violence, or, if necessary, employ lethal force to eliminate the threat.

## **B. ROE For Non-lethal Weapons**

For U.S. military forces, the term ROE is defined as "rules which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered." n173 The current instruction providing guidance to U.S. military commanders on the use of force is the Standing Rules of Engagement. n174 This replaced the JCS Peacetime Rules of Engagement on October 1, 1994 n175 and established the fundamental procedures and policies for U.S. military commanders to follow during all military conflicts, contingencies and operations. n176 The Standing Rules of Engagement are designed to assist the commander in crafting the ROE needed for mission accomplishment and to provide direction on the use of force for the safety and survival of the commander's unit and other U.S. forces in the vicinity (self-defense). n177 The ROE also represent one of the most effective means of implementing the strategic decisions made by higher headquarters.

Developing the ROE for an operation is not easy, and where the use of non-lethal weapons is planned, it is even more complicated. Since the process for preparing the ROE for different types of operations is similar, this discussion will concentrate on drafting the ROE for the use of non-lethal [\*41] weapons for a joint task force (JTF). Crafting the ROE demands attention to detail, an understanding of the bases for the ROE and a firm grasp of the process.

### **1. What Are the Bases For the ROE?**

Understanding the fundamental bases for the ROE is essential to the crafter of the ROE. Each basis is unique and, when integrated into the ROE development process, helps shape the application of military force. There are three fundamental bases for the United States' ROE: national policy, operational requirements and the law. n178 It is upon the intersection of these three bases that the ROE are built.

#### **a. National Policy**

Of the three bases, national policy may be the hardest to articulate. National policy is often referred to as a political objective. As this quote from Carl von Clausewitz indicates, the use of military force is simply the means of reaching a political objective:

War is not merely an act of policy but a true political instrument, a continuation of political intercourse, carried on with other means. What remains peculiar to war is simply the peculiar nature of its means. War in general, and the commander in any specific instance, is entitled to require that the trend and designs of policy shall not be inconsistent with these means. That, of course, is no small demand; but however much it may affect political aims in a given case, it will never do more than modify them. The political object is the goal, war is the means of reaching it and means can never be considered in isolation from their purpose. n179

The political object mentioned by Clausewitz is simply another term for foreign policy. Therefore, an understanding of the United States' foreign policy and the ramifications of that foreign policy for the military operation is very important to the crafter of the ROE. Usually, the foreign policy goals or national political objectives will be stated in the guidance received from a [\*42] higher service headquarters or from the CINC within whose area of responsibility the operation will take place. n180 In short, the ROE must be consistent with the United States' foreign policy objectives, and this is only possible if those objectives are clearly understood.

The goal of the national security policy of the United States is "to maintain a stable international environment compatible with U.S. national security interest." n181 To support this policy, the United States has formulated a global objective of deterring armed attack against its interest. For effective deterrence, one must have the ability to fight at any

level of conflict. n182 The availability of non-lethal weapons has significantly increased the United States' capability to do this. If deterrence fails, the national policy of the United States permits responses that: "(1) are proportional to the provocation; (2) are designed to limit the scope and intensity of the conflict; (3) will discourage escalation; and (4) will achieve political and military objectives." n183 In all four of these options, non-lethal weapons may provide the commander with the means of responding to the crisis short of resorting to lethal force.

### **b. Operational Requirements**

Within the JTF staff, the primary generator of operational matters is the operations directorate or J-3. n184 Normally, the operational requirements mirror the specific planning concepts that the staff has developed regarding unit security and the express and implied taskings contained within the mission. [\*43] Operational concerns usually focus on the following planning activities: mobilization, employment, sustainment, redeployment of the military force, and rules of engagement. If the mission changes, the operational concerns must be re-examined and changed when necessary. When the mission is confusing or unclear, commanders must seek clarification, because the ROE cannot be drafted without a clear understanding of the operational requirements for the mission. The J-3 must also be aware of the specific characteristics of the weapon systems to be used for the mission. This is particularly important for non-lethal systems which may be unique and require specially drafted supplemental ROE measures to ensure proper usage on the battlefield.

### **c. The Law**

The third basis for the ROE is the law. Under this basis, the focus is on the tenets of United States domestic law n185 and the obligations of the United States under international law, generally the law of armed conflict. n186 The law of armed conflict has been defined as "that part of international law that regulates the conduct of armed hostilities." n187 It includes applicable treaty law as well as customary international law. n188 The law of armed conflict is viewed as being permissive in nature. This means, if the practice being questioned is not prohibited under either customary international law or by treaty, it is permitted.

[\*44] All legal issues surrounding each operation must be examined to ensure that the ROE, when drafted, will comply with the domestic law of the United States and the law of armed conflict. Some principles of the law of armed conflict are harder to apply than others. Two of the most difficult are necessity and proportionality. For the ROE, these principles play a critical role in determining when and how much force should be used for both mission accomplishment and self-defense.

## **2. Responsibility To Craft the ROE**

The staff section within the JTF which has the primary responsibility to craft the ROE is the operations directorate (J-3). n189 This does not mean that the J-3 should draft the ROE in a vacuum. To develop ROE that are appropriate to the mission and the threat requires cooperative interaction among the various staff sections of the command. One way to generate this interaction is through the establishment of an ROE cell. n190 Since responsibility for the ROE rests with the J-3, the head of the ROE cell should be the J-3 or a J-3 deputy. Other members should include the intelligence directorate (J-2), the Staff Judge Advocate, the future plans directorate (J-5) and specialists, such as an engineer from the logistics directorate (J-4). n191 The ROE cell works best during the deliberate planning cycle for a contingency. It is less effective for time sensitive crisis action planning (CAP) for the branches and sequels because the CAP conducted within the ROE cell disrupts the normal functions of the ROE cell and stretches the officers comprising it too thin to maintain the required number of meetings and work needed to support the ROE cell and CAP. In short, conducting CAP inside the ROE cell will dramatically increase the battle staff rhythm for the ROE cell. Since the ROE cell is less effective for CAP, the JTF commander may activate a joint planning group (JPG) n192 to [\*45] conduct this type of planning. For an effective JPG, the Staff Judge Advocate or his deputy should be made a part of this group. By including the Staff Judge Advocate, the requisite synergy will be present within the JPG for the concurrent development of the ROE with the courses of action. This will permit the JPG to eliminate those courses of action which cannot be

supported by the ROE before further time and effort is expended on them. Once the CAP is complete and the execution phase begins, the command may return to the use of the ROE cell to determine if the ROE need modification to respond to any change in the mission or threat level. The following simple equation may be used to identify when changes to the ROE might be required: mission + threat = ROE. If the mission changes or the threat level changes, the ROE must be reviewed to ascertain whether modifications should be made.

### **3. ROE Preparation For the Employment of Non-lethal Weapons**

It may seem like a cliché, but properly crafted ROE are essential to the success of all operations. When formulating the ROE for an operation (to include one which will involve the employment of non-lethal weapons), the objective is to utilize the ROE cell or its equivalent to anticipate and brainstorm as many different foreseeable circumstances as possible and from this group interaction generate clear, unambiguous guidance for those military personnel who will be placed in harm's way. The two primary purposes for the ROE are to "provide implementation guidance on the inherent right and obligation of self-defense and the application of force for mission accomplishment." n193 All commanders must understand these two purposes, and how to utilize the ROE as a risk management tool. A mistake often made by commanders involves blurring the distinction between mission accomplishment and self-defense. This can lead not only to confusion within the command but also place those executing mission taskings at greater risk.

#### **a. General Discussion of Self-defense**

The right of a sovereign nation to use force in self-defense is a fundamental principle of customary international law, closely related to national independence, national existence and freedom from outside interference or intervention. A nation acting in self-defense does not gain the right to violate the law of armed conflict. n194 The inherent right of individual and collective self-defense is articulated in Article 51 of the United Nations Charter. n195 Included within self-defense is the right of anticipatory self-defense. [\*46] When an imminent threat to a nation's safety, security or existence arises, that nation may protect itself through the exercise of proportionate force under the right of anticipatory self-defense. n196 The three criteria required for the exercise of anticipatory self-defense are: "(1) the threat in issue must be imminent [or] immediate; (2) the action taken must be [\*47] necessary (no viable alternative); and (3) the force used must be proportionate to the threat posed." n197

#### **b. Elements of Self-defense**

The two elements required for self-defense are necessity and proportionality. An understanding of these two elements is critical to the concept of self-defense and to the ROE. For it is necessity and proportionality, as amplified by the policy established in the Standing Rules of Engagement, "that will be the basis for the judgment of the commander as to what constitutes an appropriate response" n198 when acting in self-defense.

##### **(1) Necessity**

The principle of necessity is the key to determining whether a lawful reason exists for the use of force in self-defense. In this context, necessity refers to the presence of an imminent danger due to the activities or actions by adverse parties, forces or nations which triggers the right to use force. Under the Standing Rules of Engagement, the necessity for self-defense may be triggered by a hostile act n199 or demonstration of hostile intent. n200 In sum, the policy guidance in the Standing Rules of Engagement has incorporated the principle of necessity as the trigger for the right to use force in self-defense.

##### **(2) Proportionality**

In self-defense proportional force means "the force used must be reasonable in intensity, duration, and magnitude, based on all facts known to the commander at the time, to decisively counter the hostile act or hostile intent and to ensure the continued safety of [U.S.] forces." n201 Proportionality in self-defense, when boiled down to the basics, involves determining the amount of force that may be used to overcome the imminent danger created by a hostile act or

demonstration of hostile intent (necessity). Although any decision regarding how much force is proportionate will be subjective, n202 the goal is to apply sufficient force to decisively handle the threat but no more than that.

[\*48] The difficult question is what constitutes proportional force in self-defense? But this question does not surface until the use of force is justified under the principle of necessity. When the proportionality issue arises in a self-defense context, the defender is normally facing a situation which requires a timely use of force to ensure self-preservation. At this point, proportionality for the defender becomes a process of deciding which available weapon system will provide the level of force needed to counter the imminent threat. Based on an assessment of the facts, the circumstances, the intelligence information regarding the imminent threat, and the weapon systems available, the defender must make a decision on the appropriate weapon system(s) to use. Two other important factors to be considered when making this decision are the need to minimize collateral damage n203 to civilian property and to reduce the death and incidental injury n204 to civilians.

### **c. Self-defense Under the ROE**

Self-defense plays a critical role in the ROE for U.S. military forces. As discussed under the principle of necessity, self-defense may be triggered by the occurrence of a hostile act or by the demonstration of hostile intent by a foreign force or a terrorist group. n205 Of these two concepts, hostile intent has always been the most difficult to ascertain. The determination of hostile intent is not based solely on objective criteria, but relies in large measure on the evaluation of intelligence information about the past, present, and future activities of a potential adversary and on the experience of the decision maker. A determination of hostile intent is, therefore, largely subjective.

Under the Standing Rules of Engagement, self-defense has been divided into two main categories. The first, national self-defense, consists of "defending the United States, [U.S.] forces, and in certain circumstances, [U.S.] citizens and their property, [U.S.] commercial assets, and other [\*49] designated non-[U.S.] forces, foreign nationals and their property, from a hostile act or hostile intent." n206 Although often discussed as a separate type of self-defense, collective self-defense, defined as "defending other designated non-[U.S.] forces, personnel and their property, from a hostile act or hostile intent," n207 has been made a subset of national self-defense within the Standing Rules of Engagement. The second major category of self-defense is unit self-defense. Unit self-defense has been defined as "defending a particular unit of [U.S.] forces, including elements or personnel thereof, and other [U.S.] forces in the vicinity, against a hostile act or hostile intent." n208 In similar fashion, the Standing Rules of Engagement make individual self-defense a subset of unit self-defense. Because the right of self-defense extends to the individual, commanders have a duty to ensure all individuals within their command have been made aware of and have received training on the principles of self-defense as articulated in the Standing Rules of Engagement. n209

The use of non-lethal weapons by a commander or members of the commander's unit in self-defense (in response to a hostile act or to a demonstration of hostile intent) must comply with the principles of necessity and proportionality. This is not something new. Any application of force in self-defense, whether by a non-lethal or a lethal weapon system, would follow these principles. Non-lethal weapons simply provide the commander with an alternative to lethal force. It should be stressed that when a self-defense situation presents itself, the availability of non-lethal weapons does not limit the "commander's inherent authority and obligation to use all necessary means available and to take all appropriate action in self-defense." n210 The words "all necessary means available" have a special classified meaning under the Standing Rules of Engagement. n211 Even without discussing this definition, the intent rings clear. It means the commander may use either non-lethal weapons, lethal weapons or both in combination. In regard to actions in national and unit self-defense, the term "all necessary means available" has been amplified by specific policy guidance which states: "(1) attempt to control without the use of force . . . (2) use proportional force to control the situation . . . [and] (3) attack to disable or destroy." n212 As indicated, the [\*50] application of force in self-defense should be a last resort. If possible, the situation should be controlled without force or if force is needed, the force used "should not exceed that which is required to decisively counter the hostile act or hostile intent and ensure the continued safety of [U.S.] forces or other protected personnel or property." n213 Once the hostile force no longer represents an imminent threat, the right to use force in self-defense ends. n214 Clearly, non-lethal weapons offer the commander viable alternatives which may

meet these policy goals. Since the self-defense obligation and authority is inherent in command, all commanders have a continuous and ongoing duty to evaluate the operational environment to determine whether the application of force for unit self-defense is appropriate.

#### **d. Use of Force for Mission Accomplishment**

The use of force for mission accomplishment under the Standing Rules of Engagement is distinct from the use of force for self-defense. When force is used for mission accomplishment, it is governed by the principles of necessity and proportionality as they apply under the law of armed conflict. In the law of armed conflict context, these principles have a much different application than they do under self-defense.

##### **(1) Necessity**

In armed conflict, only that amount of force necessary to defeat the enemy may be employed. Any application of force unnecessary to that purpose is prohibited. In short necessity limits the amount and kind of force to that which is permitted under the law of armed conflict. In this context, the term necessity is often referred to as military necessity. n215 It is important to note that military necessity does not mean military expediency. Military expediency may not be used as an excuse to expand the use of force under necessity in order to sanction violations of those protections set forth in the law of armed conflict. Military necessity simply permits attacks on lawful military objectives whose "nature, purpose, or use make an effective contribution to military action and whose total or partial destruction, capture, or neutralization at the time offers a definite military advantage." n216 Under this principle, force may lawfully be [\*51] used against those locations or places which are being used for a military purpose by an adversary or against the military personnel of that adversary. Under the Standing Rules of Engagement, once an adversary's military units have been declared hostile by appropriate authority, U.S. military units need not observe a hostile act or a demonstration of hostile intent before engaging them. n217

##### **(2) Proportionality**

What constitutes proportional force under the law of armed conflict may be very different from the quantum of force that may lawfully be used to respond to a hostile act or to a demonstration of hostile intent in self-defense. The primary difference involves the ultimate end state. During war, the goal is to obtain the submission of the adversary through the defeat of the adversary's military structure or units by overwhelming force. In contrast, self-defense is designed to counter the threat of an adversary, to ensure the continued safety of U.S. forces, and, where applicable, to deter or modify an adversary's (State or terrorist organization) future behavior.

The principle of proportionality in the law of armed conflict requires that the military action not cause collateral damage n218 or incidental injury which is excessive in light of the expected military advantage. The best decision [\*52] making tool available to help the commander determine what constitutes proportionate force for mission accomplishment is the balancing test. n219 This test weighs the possible harmful effects of the level of force contemplated in terms of incidental injury to civilians and collateral damage to civilian property against the expected military advantage.

Although customary international law may appear to remain constant, it does slowly change to incorporate new battlefield practices of warring land, naval and air forces. Once a practice has obtained a degree of regularity and is accompanied by a belief among nations that it is obligatory, that rule becomes a part of customary international law. n220 In this light, the actions of the United States and the other nations comprising the coalition force during Operation Desert Storm n221 raise an important issue. Did the manner in which this military operation was conducted n222 modify the proportionality principles of incidental injury and collateral damage? That question is still unanswered, but the meticulously orchestrated bombing campaign conducted by the coalition forces against Iraq provides strong evidence of what the United States and the other coalition nations felt they were obligated to do as a matter of law and to maintain international and domestic public support for this military action. To those who argue these actions have

changed the principles of incidental injury and collateral damage, the United States has responded that the use of "smart" bombs against Iraq did not appreciably change the principle of proportionality. Irrespective of whether the legal standard has changed, with an expected increase in the use and availability of non-lethal and precision guided lethal weapons on the horizon, the politically acceptable level of incidental injury and collateral damage is likely to become more restrictive in the future for those nations possessing such weapons.

**[\*53] e. Preparation of ROE for Mission Accomplishment**

In contrast to the self-defense guidance in the Standing Rules of Engagement, the ROE for mission accomplishment are tailored to meet the specific needs of the mission. Mission accomplishment ROE are crafted by modifying the standing rules of engagement through supplemental measures. Various categories of supplemental measures are set forth in Enclosure B to the Standing Rules of Engagement. n223 Within Enclosure B, the following policy has been given special emphasis by being placed in all capital letters and bold faced type:

**SUPPLEMENTAL MEASURES DO NOT LIMIT A COMMANDER'S INHERENT AUTHORITY AND OBLIGATION TO USE ALL NECESSARY MEANS AVAILABLE AND TO TAKE ALL APPROPRIATE ACTION IN SELF-DEFENSE OF THE COMMANDER'S UNIT AND OTHER [U.S.] FORCES IN THE VICINITY. n224**

As indicated by this policy, the right of self defense always exists and may not be changed through supplemental measures. Supplemental measures "define the limits or grant authority for the use of force for mission accomplishment, not for self-defense." n225 Through supplemental measures, the commander may grant to subordinate units or may obtain from superior headquarters those additional authorities desired for mission accomplishment or may impose specific restraints on how to carry out the mission.

When Enclosure B does not include an authority or restraint which is necessary to the mission, a new supplemental measure may be drafted to fill this need. Spares (open supplemental measures) are included throughout the different categories to allow the crafting of mission specific special supplemental measures. All the supplemental measures selected from Enclosure B or those specially drafted must be consistent with the three bases for the ROE (national policy, operational requirements and the law). n226 The message formats for requesting and authorizing supplemental measures for the ROE and examples of completed messages are included in Enclosure B. n227

[\*54] There is an ongoing debate about whether a fundamental change to the Standing Rules of Engagement is necessary to meet the operational requirements presented by the employment of non-lethal weapons in a MOOTW. n228 Currently, no consensus has developed to support this change. n229 Quite to the contrary, it is generally felt that no major change to the Standing Rules of Engagement is needed to support the employment of non-lethal weapons in future MOOTWs. Rather, the same considerations which go into the drafting of the ROE for traditional lethal weapons must be applied to this new capability. Although this debate concerning MOOTWs will continue, the real focus should be on training commanders and their staffs on the use of the Standing Rules of Engagement so that they have the ability to prepare appropriate ROE for the employment of both non-lethal and lethal weapon systems.

When drafting the ROE for any operation, the commander and members of the ROE cell (if the ROE cell concept is employed) or key staff personnel (the J-3, the J-2, SJA, etc.) must have a firm understanding of national policy, the operational requirements and the law as it applies to that [\*55] specific mission. Once these issues have been identified, the ROE cell should start reviewing the potential supplemental measures available in Enclosure B of the Standing Rules of Engagement. The development of the ROE for the operation should parallel the preparation of the courses of action for the mission. For each of the expressed and implied taskings identified in the mission, the operation plan should set forth the special capability the command needs to accomplish that specific task. Next, the commander and the J-3 must identify the type of weapon systems that will be used to provide the capability to accomplish the identified task. For each non-lethal or lethal weapon system selected to meet an operational capability, the commander, the J-3 and the ROE cell need to be made aware of the specific characteristics of that weapon system. These

characteristics may influence how potential supplemental measures, if needed, will be crafted in order to provide for the proper employment of that weapon system. Once the weapon systems are identified, the ROE cell may need to incorporate supplemental measures that will permit either the unfettered or restricted use of those weapon systems. n230 These measures should cover the use of force required to satisfy the capabilities that have been identified as necessary for mission accomplishment. In many instances the standard supplemental measures chosen from Enclosure B may require modification when providing guidance on the employment of non-lethal weapons. n231 Through the modification of an existing supplemental measure or through the drafting of a spare supplemental measure, the ROE cell may generate tailor-made ROE for the operation. The ultimate goal of this entire process is to provide sufficient guidance to the members of the command so that no hesitation arises when a decision must be made on when and how to use force.

## VI. Conclusion

If the United States is to maintain technological superiority on the battlefield, traditional military planning and thinking must be modified to ensure non-lethal technologies are considered during the operational planning phase and not as an afterthought. Movement in this direction has begun. Today, each CINC has the duty to ensure that procedures exist for the integration of non-lethal weapons into operational mission planning. n232 Hesitancy to employ new systems should not prevent the exploitation of non-lethal [\*56] technology, for "once in a while a door opens and lets the future in." n233 Non-lethal systems provide commanders with the tools to dominate maneuver, shape the battlefield, and provide enhanced protection to their forces. By requiring commanders to consider the application of non-lethal technologies for all operations, the full dimensional protection envisioned by Joint Vision 2010 n234 will be achieved. In the words of General John Sheehan, U.S. Marine Corps, "[non-lethal arms] will always be tomorrow's weapons unless we move now. We need to pull them from the laboratories and place them in operational units." n235

If one reviews a number of different scenarios spanning the spectrum of conflict for the type of weapon systems that should be used, the analyses will suggest that a force equipped with a mixture of non-lethal and lethal conventional weapon systems is superior to one equipped solely with lethal conventional weapon systems. Since the ultimate goal of the United States is to field a superior military force, that force must be equipped with non-lethal and lethal weapon systems. As commanders become more familiar with non-lethal weapons and their applications on the modern battlefield, the status of non-lethal technology will be elevated. Over time, old stereotypes which infer that killing or destroying the enemy is the only path to victory will be modified to reflect the impact of non-lethal technology. A new stereotype will emerge that recognizes that killing or destroying the enemy is not the only way to defeat him.

### Legal Topics:

For related research and practice materials, see the following legal topics:

Computer & Internet Law  
Criminal Offenses  
Data Crimes & Fraud  
Criminal Law & Procedure  
Criminal Offenses  
Weapons Use  
Simple Use  
Elements  
International Law  
Sovereign States & Individuals  
Human Rights  
Terrorism

### FOOTNOTES:

n1 Lieutenant Colonel, United States Marine Corps. Currently, the Assistant Director for Amphibious Operations, Oceans Law and Policy Department in the Center for Naval Warfare Studies at the Naval War College, Newport, Rhode Island. B.S., 1977 University of Tennessee at Martin; J.D., 1981 University of Tennessee at Knoxville; LL.M., 1989, George Washington University. Prior to assignment to the Naval War College, he served in back-to-back tours as the Deputy Staff Judge Advocate for U.S. Marine Corps Forces, Atlantic II Marine Expeditionary Force and for III Marine Expeditionary Force/3d Marine Division.

n2 A chronological summary of the events leading to Operation United Shield follows. The failure of the

United Nations Operation in Somalia (UNOSOM I) to alleviate the widespread famine and disease, the devastating clan warfare and the tremendous loss of life led President George Bush in the Autumn of 1992 to call for more involvement by the United States and the international community. An international effort was thereafter undertaken to restore order and to deliver humanitarian aid to the people of Somalia under Operation Restore Hope. The commander for the U.S.-led Unified Task Force (UNITAF) was Lieutenant General Robert Johnston, U.S. Marine Corps. By the Spring of 1993, activities in Somalia began to return to normal. The widespread famine and disease once prevalent were under control and the fighting between the clans had all but stopped. Somalia was again at peace, and the time seemed right to transfer control of the operation to the United Nations. In May 1993, command and control of Operation Restore Hope was turned over to the United Nations in what became known as United Nations Operation Somalia II (UNOSOM II). The United Nations leadership decided to embark on a much more ambitious nation-building and disarmament policy for Somalia. This new policy created increased turmoil among the warring clans and factions in Somalia. The end result was the death of over 130 peacekeepers, and the judgment by many in the international community that the United Nations mission in Somalia had failed. In light of these events, the United Nations ordered the withdrawal of all peacekeepers from Somalia by March 1995. The United Nations requested the United States provide security for the peacekeepers during the withdrawal. During January 1995, the U.S. Central Command tasked I Marine Expeditionary Force (MEF), under the command of Lieutenant General (now General) Zinni, to conduct this operation (this was the same command that had been involved in Operation Restore Hope in 1993 under Lieutenant General Johnston). Operation United Shield began in February 1995. Colonel Frederick M. Lorenz, U.S. Marine Corps, "*Less-Lethal*" Force in Operation United Shield, Marine Corps Gazette, September 1995 at 69-70; Lieutenant Colonel Leslie L. Ratliff, U.S. Army, Joint Task Force Somalia, A Case Study 1-6 (March 14, 1996) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island) and F. M. Lorenz, *Non-Lethal Force: The Slippery Slope to War?*, Parameters, Autumn 1996 at 52-53. See also Lieutenant Colonel Roger D. Kirkpatrick, U.S. Marine Corps, Humanitarian Expeditions to Somalia 1-27 (April 25, 1994) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island) and Lieutenant Colonel George P. Fenton, U.S. Marine Corps, -- Marine Expeditionary Units (Special Operations Capable) -- at the Operational Level in Military Operations Other Than War 1-17 (June 16, 1994) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island).

n3 On April 8, 1975, President Gerald Ford issued Executive Order 11,850 which addresses the use of riot control agents by the U.S. armed forces. Under Executive Order 11,850, the United States renounced the use of riot control agents in time of war without authorization from the national command authorities. Exec. Order No. 11,850, 40 Fed. Reg. 16187, 3A C.F.R. 149-150 (1975).

n4 *Id.* Executive Order 11,850 also discusses the use of herbicides by the U.S. armed forces. There are two uses expressly permitted under this order without authorization from the national command authorities. Those two uses are: (1) control of vegetation around and within the immediate defensive perimeter of a U.S. military installation or base and (2) domestic use. For a discussion of the U.S. military's use of defoliants in Vietnam see *Herbicides in War: The Long-term Ecological and Human Consequences* (Arthur H. Westing ed., 1984); Thomas Whiteside, *The Withering Rain: America's Herbicidal Folly* (1971); and *A Technology Assessment of the Vietnam Defoliant Matter, A Case History, Report to the Subcommittee on Science, Research, and Development of the Committee on Science and Astronautics, U.S. House of Representatives, 91st. Cong 1st Sess.* (August 8, 1969).

n5 One of the non-lethal "smart weapons" used during the Gulf War was a special warhead adapted for the Tomahawk Cruise missile that dispersed thousands of carbon fibers after exploding over an electrical power station target. After the carbon fibers drifted down and settled, they would cause the power station to short circuit. By using this type of non-lethal weapon, the United States was able to neutralize several of the Iraqi

electrical power stations without permanent damage. Nick Lewer, *Non-Lethal Weapons -- A New Dimension*, Bulletin of Arms Control, September 1996 at 1; David A. Fulgham, *Secret Carbon-Fiber Warheads Blinded Iraqi Air Defenses*, Aviation Week & Space Technology, April 27, 1992 at 18-20. *See also*, 60 Minutes: *Shoot not to Kill* (CBS television broadcast, L. Franklin Devine, May 1996).

n6 The impetus to exploit non-lethal technology did not arise until the post cold-war era and the shift of the United States' national focus from conventional war to peacekeeping operations, humanitarian operations and regional conflicts. However, non-lethal technology had been available for decades as evidenced by Central Intelligence Agency (CIA) documents from the 1960s that discuss weapon systems which could be characterized as employing non-lethal technology. Steven Aftergood, *The Soft-Kill Fallacy*, The Bulletin of the Atomic Scientists (September/October 1994) at 40. Also, the U.S. National Science Foundation Report on Non-Lethal Weapons of 1972 contained a list of 34 different weapon systems that could be characterized as non-lethal. J. Wright, *Shoot Not to Kill*, The Guardian (May 19, 1994). *See also* National Security Program Policy Analysis Paper No. 94-01, *Nonlethal Military Means: New Leverage For A New Era* (1994), Colonel John L. Barry, U.S. Air Force, ET AL., at 9.

n7 Colonel Lorenz, *supra* note 2, at 70. As stated by Assistant Secretary of Defense, H. Allen Holmes, "the operation in Somalia was the first contingency where U.S. troops employed non-lethal weaponry against hostile forces." *Warfighters Want Weapons That Disable But Don't Kill*, National Defense, July/August 1996 at 24.

n8 SUN TZU, THE ART OF WAR 77 (Samuel B. Griffith trans., Oxford Press 1969). Although Sun Tzu wrote these words almost twenty-four hundred years ago, they still ring true today. Military commanders who desire to show their skill and leadership must take advantage of non-lethal technology to help forge a new military strategy for the next millennium.

n9 Generally, commanders will employ only those weapon systems they feel comfortable using. For most commanders, the comfort level for lethal weapon systems is much higher than the comfort level for non-lethal weapons. Raising the comfort level of commanders for non-lethal systems will require a concerted effort by the military services through the implementation of improved training and instruction with respect to their capability and versatility. The Commander in Chief (CINC), United States Special Operations Command and the Secretaries of the Military Departments are responsible for the training of military personnel concerning non-lethal weapons. U.S. DEP'T OF DEFENSE, DIR. 3000.3, POLICY FOR NON-LETHAL WEAPONS (9 Jul, 1996). For further discussion on training issues *see* pages 26-30.

n10 In this endeavor the military services should heed the advice of General Charles C. Krulak, Commandant, U.S. Marine Corps, and lean on private industry and other "national assets" to help in the development of these new tactics and strategies. *The Next Millennium*, Navy Times, January 5, 1998 at 34.

n11 United States allies in the North Atlantic Treaty Organization (NATO) have recognized that non-lethal weapon systems will play a major role in future warfare. Currently, NATO has assembled a panel of experts to decide what types of non-lethal technologies the alliance should accept and use in future peacekeeping operations and traditional military operations. Brooks Tigner, *NATO Panel To Steer Nonlethal Weapon Use*, Army Times, October 13, 1997 at 37.

n12 The joint task force commander must build/organize the force so that it has all the capabilities required to complete the expressed and implied tasks of the mission.

n13 Some of the terms that have been used to describe non-lethal weapons are as follows: non-injurious, disabling measures, system disabling, immobilizers, discriminate force, less-lethal, less-than-lethal, minimum force, strategic immobilizers, mission kill, new age weapons, soft kill, stabilizing technology, denial of services concepts, limited effects technology, neutralizing technology, reduced lethality weapon, low collateral damage, weapons which do not cross the death barrier, and pre-lethal. For a discussion of some of these terms *see* Nick Lewer and Steven Schofield, *Non-Lethal Weapons: A Fatal Attraction* 5-6 (1997); Nick Lewer, *Non-Lethal Weapons -- A New Dimension*, Bulletin of Arms Control, September 1996 at 1; Nick Lewer, *Non-Lethal Weapons*, Medicine and War 78 (1995); *Disabling Technologies: A Critical Assessment*, International Defense Review 33 (1994); *Operations Other Than War: The Technological Dimension* 44-45, Institute For National Strategic Studies, National Defense University (1995); and Lieutenant Colonel Alan W. Debban, U.S. Air Force, *Disabling Systems: War Fighting Option for the Future*, Airpower Journal 45 (Spring 1993). Even within the military services there has been considerable debate over what terminology should be used. The U.S. Army and the U.S. Air Force favored use of the term "non-lethal" weapons, while the U.S. Marine Corps and the U.S. Navy favored use of the term "less lethal." For a brief discussion of the rationale behind the U.S. Marine Corps' support of the term "less lethal" and the U.S. Army's adoption of the term "non-lethal" *see* Lexi R. Alexander and Julia L. Klare, *Nonlethal Weapons: New Tools for Peace*, Issues in Science and Technology, Winter 1995-1996 at 69. *See also* Colonel Lorenz, *supra* note 2, at 70. After much debate, the term that gained favor within the Department of Defense was "non-lethal."

n14 Non-lethal weapons can be fatal. For example, pepper spray has proven fatal in several cases; microwaves can disable pacemakers; acoustic weapons have killed humans; and dazzling lasers which were used against Argentinean pilots to cause temporary blindness in the Falklands War resulted in three plane crashes. Barry ET AL., *supra* note 6, at 13.

n15 Lewer and Schofield *supra* note 13, at 5. *See also* Barry ET AL., *supra* note 6, at 5.

n16 Lewer and Schofield *supra* note 13, at 6.

n17 The term "diplomatic matters" might more appropriately be viewed as "coercive diplomacy." In essence, non-lethal weapons broaden the foreign policy options available to the United States. Donald Daniels, Bradd Hayes and Chantal de Jonge Oudraat have conceptualized a new type of United Nations operation known as "coercive inducement" which is distinct from the traditional United Nations missions of peacekeeping and peace enforcement. Memorandum from Donald C. Daniel ET AL., Strategic Research Department, Center for Naval Warfare Studies, U.S. Naval War College, Research Report No. 9-97, Subject: *Talons of the Dove: Coercive Inducement and the Containment of Crisis*, at 17. As conceptualized, the "coercive inducement" operation would be an excellent example of "coercive diplomacy" and would provide an outstanding opportunity for the employment of non-lethal weapons.

n18 DoD Dir. 3003, *supra* note 9, at 1. For other definitions of the term "non-lethal weapons" *see* Lewer and Schofield *supra* note 13, at 6-7.

n19 Some of the major goals of information warfare are to use non-lethal technology and lethal weapon systems to deny, destroy, neutralize, or disable the communication and targeting capabilities of an enemy. Information warfare has been defined in a Chairman, Joint Chief of Staff Instruction as: "actions taken to achieve information superiority by affecting adversary information, information-based processes, information systems, and computer-based networks while defending one's own information, information-based processes,

information systems, and computer-based networks." CHAIRMAN, JOINT CHIEFS OF STAFF INSTR. 3210.10, JOINT INFORMATION WARFARE POLICY, 6 (2 Jan 1993). In similar fashion, the Department of Defense defines information warfare as: "information operations conducted during time of crisis or conflict to achieve or promote specific objectives over a specific adversary." U.S. DEPT OF DEFENSE Dir.S-3600.1. INFORMATION WARFARE, 1-1 (1996). The Department of Defense defines information operations as: "actions taken to affect adversary information and information systems while defending one's own information and information systems." *Id.* Martin C. Libicki envisions information as a realm where conflict may occur as in the air, sea and land, and he discusses who should wage an information war. During this discussion, Libicki acknowledges the notion that information warfare may be viewed as non-lethal strategic warfare. Martin C. Libicki, *The Mesh and the Net, Speculations on Armed Conflict in a Time of Free Silicon* 80-81, Center for Advanced Concepts and Technology, Institute for National Strategic Studies, National Defense University (August 1995).

n20 Martin C. Libicki, *What Is Information Warfare?* 3, Center for Advanced Concepts and Technology Institute for National Strategic Studies, National Defense University (August 1995).

n21 *Id.* at 7.

n22 "Electronic Warfare (EW) is any military action involving the use of electromagnetic and directed energy to control the electromagnetic spectrum or to attack the enemy. The three major subdivisions of Electronic Warfare are Electronic Attack (EA), Electronic Protection (EP) and Electronic Warfare Support (ES)." CHAIRMAN, JOINT CHIEFS OF STAFF MEMORANDUM OF POLICY NO. 6, ELECTRONIC WARFARE, 1 (1993). Electronic warfare, sometimes referred to as electronic combat, continues to grow with each new advancement in technology. When properly integrated into military operations, it can enhance combat power. As with information warfare, there is a need for both offensive and defensive electronic warfare capability. In addition, there is a fear that another nation or unfriendly special interest group could outbuild the United States. Colonel Richard A. Rash, U.S. Air Force, *Electronic Combat -- Making the Other Guy Die For His Country* 25 (Air War College Research Report 1983). *See also* W. L. Colton ET AL., *Overview of Electronic Warfare: A Survey of Trends, Systems and Effects* (Defense Technical Information Center 1987).

n23 Since command and control warfare implements information warfare, command and control warfare may be viewed as a subset of information warfare. CHAIRMAN, JOINT CHIEFS OF STAFF MEMORANDUM OF POLICY NO. 30, COMMAND AND CONTROL WARFARE, 3 (1993). Command and control warfare has been defined as: "the integrated use of operations security (OPSEC), military deception, psychological operations (PSYOP), electronic warfare (EW), and physical destruction, mutually supported by intelligence, to deny information to, influence, degrade or destroy adversary [command and control (C2)] capabilities, while protecting friendly C2 capabilities against such actions." *Id.* at 2.

n24 Libicki, *supra* note 20, at 97. *See also* Martin C. Libicki, *Defending Cyberspace and Other Metaphors*, Center for Advanced Concepts and Technology Institute for National Strategic Studies, National Defense University (February 1997).

n25 Chris Morris ET AL., *Weapons of Mass Protection: Nonlethality, Information Warfare, and Airpower in the Age of Chaos*, *Airpower Journal* 25 (Spring 1995). *See also* Xavier K. Maruyama, *Technologies in Support of International Peace Operations: Military Technologies for Ground Forces* (Draft) 42-44 (unpublished manuscript on file with the author).

n26 Morris ET AL., *supra* note 25, at 25. *See also* Benjamin F. Crew, Information Warfare, Organizing for Action, 1-2 (May 20, 1996) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island).

n27 The establishment of the Department of Defense non-lethal weapons policy in DoD Dir. 3000.3 (July 9, 1996) represented the first major step toward better coordination and cooperation among the military services in the non-lethal technology arena.

n28 Burton Stevenson, THE MACMILLIAN BOOK OF PROVERBS, MAXIMS, AND FAMOUS PHRASES 290 (1965).

n29 A security test of the Defense Department's communication systems revealed serious vulnerabilities to existing software such as SATAN which is available to anyone on the internet. Arnaud de Borchgrave, *Is America At Risk In A Cyberwar*, Insight on the News, March 11, 1996 at 48.

n30 CHAIRMAN, THE JOINT CHIEFS OF STAFF, *Information Warfare: A Strategy for Peace . . . The Decisive Edge in War*, (n.d.) at 1.

n31 For example, with the breakup of the former Soviet Union and the disintegration of Russian control over the Eastern Bloc nations, the peacekeeping and peace enforcement challenges facing U.S. political leaders have expanded. Since "traditional U.S. national security interest are no longer seriously threatened, the United States enjoys the luxury of placing its military power in the service of promoting democracy, human rights, humanitarian relief and other American values overseas." Jeffrey Record, *Congress, Information Technology, and the Use of Force* 476-477, Information Age Anthology: Volume I, Part Three, Government and the Military, Center for Advanced Concepts and Technology, Institute for National Strategic Studies, National Defense University (David S. Alberts and Daniel S. Papp eds., June 1997). *See also* Lewer, *Medicine and War*, *supra* note 13, at 88. Operations conducted to establish peace, to promote democracy and to supply humanitarian relief often result in situations where the use of non-lethal weapons may be appropriate.

n32 The civilian leadership in the United States often walks a political tightrope. On one hand they feel obligated through a sense of moral obligation and internal domestic pressure to intervene to help alleviate suffering, but on the other hand they want to avoid U.S. military and foreign civilian casualties. Alexander and Klare, *supra* note 13, at 68.

n33 *Non-Lethal Technology: Military Options and Implications, Report of an Independent Task Force*, sponsored by the Council on Foreign Relations (Malcolm H. Wiener, Chairman) viii (1995).

n34 Lewer, *Medicine and War*, *supra* note 13, at 88.

n35 Lieutenant Colonel Martin Stanton, U.S. Army, *Nonlethal Weapons: Can of Worms*, U.S. Naval Institute Proceedings, November 1996 at 60. *But see* Major Terry Van Williams, U.S. Marine Corps, *Filling An Operational Requirement: The Nonlethal Approach* 10 (February 13, 1998) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island).

n36 Lieutenant Colonel Greg R. Schneider, U.S. Air Force, *Nonlethal Weapons: Considerations for Decision Makers*, ACDIS Occasional Paper, (Champaign, Illinois: The Program in Arms Control, Disarmament and International Security, University of Illinois at Urbana-Champaign) (January 1997) at 23 and Major Harold C. Bass, U.S. Marine Corps, *Nonlethal Weapons and Conventional War: Facing the Issues and Dilemmas 7* (February 13, 1998) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island).

n37 Pandora was the name of an infamous woman in Greek mythology. Her name means "all giving." WEBSTER'S II NEW RIVERSIDE UNIVERSITY DICTIONARY 849 (1994). She was created by Hephaestus at the direction of Zeus, and she was provided with beauty, feminine skills and cunning by the Olympian deities. The purpose for her creation was to punish all mankind for the act of Prometheus who, in defiance of the gods, had stolen fire from the heavens. As a dowry, Pandora was given a magic jar filled with every human sickness and evil. Although Pandora's amorous advances were rejected by Prometheus, they were welcomed by his brother, Epimetheus, who married her. Together, Pandora and Epimetheus were able to open the magic jar (referred to as Pandora's box) releasing all of the misfortunes and sorrows that now afflict humanity. See John A. Crow, *Greece: The Magic Spring* 95 (1970). The use of the term "Pandora's box" can be traced back to the famous quotation by Ernest Bevin, "if you open that Pandora's Box you never know what Trojan horses will jump out." THE OXFORD DICTIONARY OF QUOTATIONS 44 (3rd ed. 1979).

n38 *Supra* note 33, at ix. See also the argument that the movement by the industrialized nations into "non-lethality could pry open a Pandora's box of chemical, biological, and nuclear weaponry that diplomats have spent much of the 20th century trying to keep closed." T. E. Ricks, *Nonlethal Arms: New Class of Weapons Could Incapacitate Foe Yet Limit Casualties; Military Sees Role For Lasers, Electromagnetic Pulses, Other High-tech Tricks, Sticky Roads, Stalled Tanks*, WALL ST. J., Jan. 4, 1993, at A1.

n39 *Supra* note 33, at xi.

n40 Harvey M. Sapolsky, *War Without Killing*, U.S. Domestic and National Security Agendas: Into the Twenty-first Century 27-40 (Sam C. Sarkesian and John Mead Flanagan eds., 1994). U.S. military commanders involved in future conflicts must be very attuned to the Cable News Network (CNN) factor. Although the law of war requires commanders to minimize collateral damage and incidental injury, future political demands may go well beyond what is required by the law of war. Commanders should expect American reporters and camera crews to bring the horror of the dead and the cries of the wounded into the living rooms of the American people through television. Politically, this means the commander must utilize those weapon systems which will accomplish the mission while simultaneously reducing the CNN impact at home. For some missions, non-lethal weapon systems may be the solution by providing a use of force acceptable to political leaders and to the American public.

n41 This is a quotation from Richard L. Garvin, an eminent United States weapons expert. Malcolm Dando, *A New Form of Warfare* 9 (1996). For a discussion of the historical underpinnings of the present Department of Defense policy regarding access by journalist to U.S. military operations see Colonel James P. Terry, U.S. Marine Corps (Retired) *Press Access To Combatant Operations in the Post Peacekeeping Era*, 154 MIL. L. REV. 1 (October, 1997).

n42 The long range budgetary planning for non-lethal technology calls for spending \$ 164 million per year through 2003. Mark Walsh, *Pentagon Programs \$ 164 Million for Non-Lethals Through 2003*, Defense Week,

January 13, 1997. The defense budget for fiscal year 1997 was \$ 249,994,000,000.00. *See* Appendix B to the *Annual Report to the President and the Congress* (Office of the Secretary of Defense April 1997).

n43 Marine Corps News Release # 481, Subj: *Marine Corps Executive Agent for Non-Lethals; New Office Now Open* (July 18, 1997).

n44 The Marine Corps was designated the executive agent of the Non-Lethal Weapons Program by the Department of Defense on July 9, 1996. DOD DIR. 3000.3, *supra* note 9, at 1.

n45 For the fiscal year (FY) 98/99, funds were allocated for the following 14 multiservice programs: Non-lethal Crowd Dispersal; Acoustics Bio-Effects; Modular Crowd Control Munition; Ground Vehicle Stopper and Maritime Vessel Stopper; Speed Bump (Net); Active Denial Technology; 66 MM Vehicle Launched Payloads; UAV Non-lethal Payloads; Bounding Non-lethal Munitions; Canister Launched Area Denial System; Foam Applications; Acoustic Generators; Vortex Ring Gun; and Under Barrel Tactical Payload Delivery System. Joint NLW Directorate News, Vol. 1, No. 4, February 1998 at 1 and with Colonel Andy Mazzara, U.S. Marine Corps, Director of the JNLWD, on January 8, 1998.

n46 The new Institute for Non-Lethal Defense Technology opened its doors officially on November 21, 1997. Part of the initial work for the institute will involve the Human Effects Advisory Panel (HEAP). The HEAP will review data from tests conducted on new non-lethal technologies and help with the development of evaluation criteria. Joint NLW Directorate News, Vol. 1, No. 4, February 1998 at 2. For a discussion supporting the need for linkage between the university community and the military-related science and technology for non-lethal weapons see Colonel Dennis B. Herbert, U.S. Marine Corps (Retired), *When Lethal Force Won't Do*, U.S. Naval Institute Proceedings, February 1998 at 47.

n47 Maruyama, *supra* note 25, at 13.

n48 Williams, *supra* note 35, at 1-17. Major Williams defines the "battlespace effectors" as "any device explicitly designed to be placed in a specific location, activated by the presence or contact of a person(s) or vehicle(s), to incapacitate personnel or vehicles, while minimizing fatalities, permanent injury or undesired damage." *Id.* at 5. He states that the greatest application potential rests with "battlespace effectors" using one of the following non-lethal technologies: "acoustic, chemical, electrical, electromagnetic, mechanical, or optical." *Id.* at 6.

n49 Vincent Kiernan, *War Over Weapons That Can't Kill*, *New Scientists*, December 11, 1993 at 14 and Lewer, *Medicine and War*, *supra* note 13, at 80 (1995).

n50 Maruyama, *supra* note 25, at 25.

n51 Lewer, *Medicine and War*, *supra* note 13, at 80 and Maruyama, *supra* note 25, at 25.

n52 Lewer, *Medicine and War*, *supra* note 13, at 80.

n53 Paul Evancoe and Mark Bentley, *CVW -- Computer Virus as a Weapon*, Military Technology, May 1994 at 38-40 and Lewer, *Medicine and War*, *supra* note 13, at 82.

n54 Maruyama, *supra* note 25, at 23.

n55 Lewer, *supra* note 5, at 1; Fulgham, *supra* note 5, at 18-20; Maruyama, *supra* note 25, at 24; and Lewer, *Medicine and War*, *supra* note 13, at 80. *See also* 60 Minutes: CBS broadcast television, *supra* note 5.

n56 Lewer, *Medicine and War*, *supra* note 13, at 81. *See also* *Herbicides in War: The Long-term Ecological and Human Consequences*, *supra* note 4 and Whiteside, *supra* note 4.

n57 Lewer, *Medicine and War*, *supra* note 13 at 80.

n58 Kiernan, *supra* note 49, at 14 and Lewer, *Medicine and War*, *supra* note 13, at 80.

n59 Lewer, *Medicine and War*, *supra* note 13, at 81.

n60 Maruyama, *supra* note 25, at 21.

n61 *Id.* at 35.

n62 *Id.* at 23.

n63 *Id.* at 36.

n64 U.S. DEP'T OF ARMY, *NONLETHAL CAPABILITIES IN ARMY OPERATIONS*, TRADOC Pam. 525-73, at 10 (1 September 1996). *See also* Lewer, *Medicine and War*, *supra* note 13, at 81.

n65 Lewer, *Medicine and War*, *supra* note 13, at 81 and Maruyama, *supra* note 25, at 25.

n66 Lewer, *Medicine and War*, *supra* note 13, at 80 and Maruyama, *supra* note 25, at 22.

n67 Maruyama, *supra* note 25, at 24.

n68 Lewer, *Medicine and War*, *supra* note 13, at 81.

n69 *A World of Insecurity Remains*, *Jane's Defense Weekly*, November 12, 1994 at 33-35.

n70 *Nonlethal Capabilities In Army Operations*, *supra* note 64 at 9.

n71 Mark Walsh, *Dirty Little Spies*, Army Times, June 9, 1997 at 34.

n72 Non-Lethal Weapons: Terms and References 2 (Robert J. Bunker ed., July 1997).

n73 Maruyama, *supra* note 25, at 36.

n74 Non-Lethal Weapons: Terms and References, *supra* note 72, at 6.

n75 David Wood, *Do We Really Need Fighter Pilots?*, Staten Island Advance (November 4, 1997). Engineers at Lockheed Martin are currently working on the newest version of an unmanned aerial vehicle called the Uninhabited Combat Air Vehicle (UCAV). The UCAV employs non-lethal intelligence gathering capabilities while also being able to be used for suicide-like strikes against an enemy destroying itself if necessary to accomplish the mission. Robert Holzer, *UAVs Someday Could Be Launched From a Sub*, Navy Times, November 3, 1997 at 31. The Department of Defense is looking at the development of a tiny airplane about 15 centimeters in length to conduct reconnaissance and communication operations. This airplane would also be capable of conducting lethal missions when necessary. The advantage this capability presents is low cost and unobtrusiveness. George Seffers and Mark Walsh, *Stealth That Fits In Your Hand*, Navy Times, November 24, 1997 at 34. Testing of a new UAV non-lethal strike capability developed under the UAV Non-Lethal Payload Program is set for the Fall of 1998 aboard a Navy ship. If the test goes well, this UAV system may soon become a reality for deploying forces. Joint NLW Directorate News, Vol. 1, No. 4, February 1998 at 3. Another capability being adapted for use with the UAV is a new minefield detection system which will sense and map minefields from the surf zone inland. *UAV Mine-Finder on Tap*, Navy Times, February 9, 1998 at 32.

n76 Lewer, *Medicine and War*, *supra* note 13, at 81. *See also* Non-Lethal Weapons: Terms and References, *supra* note 72, at 2.

n77 Non-Lethal Weapons: Terms and References, *supra* note 72, at 21.

n78 John G. Roos, *Nowhere To Hide: High Tech Counter-Sniper Systems Unmask Urban Terrorists*, Armed Forces Journal International 18 (July 1996).

n79 Non-Lethal Weapons: Terms and References, *supra* note 72, at 2.

n80 *Id.* at 2.

n81 Lewer, *Medicine and War*, *supra* note 13, at 82.

n82 Non-Lethal Weapons: Terms and References, *supra* note 72, at 12.

n83 Maruyama, *supra* note 25, at 41. *See also* Nonlethal Capabilities In Army Operations, *supra* note 64, at 8.

n84 Nonlethal Capabilities In Army Operations, *supra* note 64, at 8. *See also* Lewer, Medicine and War, *supra* note 13, at 81.

n85 Maruyama, *supra* note 25, at 39.

n86 *Id.* at 39.

n87 *Id.* at 39.

n88 Holograms may be used to cause fear among the target population and to generate psychological unrest. Examples of holograms that might be used include religious imagery or images of forces that do not exist. A number of other C2 and PSYOP uses may be made of this type of technology depending on the specific mission (information warfare, etc.). *See* Non-Lethal Weapons: Terms and References, *supra* note 72, at 15 and Lewer, Medicine and War, *supra* note 13, at 82.

n89 Lewer, Medicine and War, *supra* note 13, at 81.

n90 *Id.* at 81.

n91 Non-Lethal Weapons: Terms and References, *supra* note 72, at 5.

n92 Nonlethal Capabilities In Army Operations, *supra* note 64, at 9.

n93 Lewer, Medicine and War, *supra* note 13, at 81.

n94 Nonlethal Capabilities In Army Operations, *supra* note 64, at 9.

n95 *Id.* at 8. *See also* Leila Cobo-Hanlon, *The Goods at Arm's Length; From Panic Button To Odor Deterrents, There's A Billion Dollar Market Just Waiting to Help You Increase Your Sense of Security -- Even If You Have To Leave Your Home*, Los Angeles Times, October 8, 1996 at E3.

n96 Lewer, Medicine and War, *supra* note 13, at 81.

n97 Non-Lethal Weapons: Terms and References, *supra* note 72, at 4.

n98 Maruyama, *supra* note 25, at 38.

n99 *Id.* at 38.

n100 Lewer, Medicine and War, *supra* note 13, at 82 and Maruyama, *supra* note 25, at 38.

n101 Maruyama, *supra* note 25, at 39. This non-lethal weapon system may also be delivered in conjunction with a stinger grenade containing rubber projectiles.

n102 Maruyama, *supra* note 25, at 39. Message, 312020Z Jul 98, Commandant Marine Corps, pp 10, Subject: Marine Corps Training and use of Oleonesin Capsieum (OC) Spray (Guidance on training and use of pepper spray).

n103 Alexander and Klare, *supra* note 13, at 68.

n104 Maruyama, *supra* note 25, at 39.

n105 Lewer, *Medicine and War*, *supra* note 13, at 82.

n106 *Nonlethal Capabilities In Army Operations*, *supra* note 64, at 9.

n107 *Id.* at 8.

n108 *Non-Lethal Weapons: Terms and References*, *supra* note 72, at 3.

n109 *Nonlethal Capabilities In Army Operations*, *supra* note 64, at 8.

n110 *Operations Other Than War*, *supra* note 13, at 29.

n111 Discussion with Colonel Andy Mazzara, U.S. Marine Corps, Director of the JNLWD, on January 8, 1998.

n112 General Zinni's staff canvassed civilian law enforcement agencies and civilian and military research facilities to evaluate the suitability of non-lethal technologies for use during Operation United Shield. Colonel Lorenz, *supra* note 2, at 70.

n113 For information concerning the new non-lethal technologies available, the Director of the JNLWD may be reached by telephone at (703) 784-1977/2951/2997 or DSN 278-1977/2951/2997. Marine Corps News Release # 481, *supra* note 43 at 1.

n114 *Joint NLW Directorate News*, Vol. 1, No. 2, October 1997 at 3. The Joint Non-Lethal Weapons Program Website may be accessed on the internet at <http://www.hqmc.usmc.mil/nlw/nlw.nsf>.

n115 Memorandum of Agreement, Subj: *DoD Nonlethal Weapons (NLW) Program* (January 21, 1997). [hereinafter memorandum]

n116 Colonel Andy Mazzara, U.S. Marine Corps, Director of the JNLWD, introductory remarks at the Joint

Non-lethal Weapon Standing Rules of Engagement Development Conference in Quantico, Virginia (January 7, 1998.) *See also* messages R 041445Z Dec 97 and R131217Z Jan 98, Commandant of the Marine Corps.

n117 Memorandum of Agreement, *supra* note 115, at 2.

n118 Colonel Lorenz, *supra* note 2, at 74.

n119 For a detailed discussion of the training required for non-lethal weapons see pages 26-29.

n120 Some non-lethal weapon systems may be highly flammable, involve caustic chemicals, or other dangerous items which require unique shipping and transportation measures.

n121 *See* Colonel Lorenz, *supra* note 2, at 70 and Commander M. E. McWatters, U.S. Navy, Beanbags and Foam: All Snickering Aside 13 (June 13, 1997) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island).

n122 Often the deficiencies of a non-lethal weapon system will not be discovered until the system is actually used in training or deployed on the battlefield. For example, the testing, training and deployment of sticky foam highlighted the following inadequacies: difficult to aim; applicator was expensive, of limited capacity and fragile; and it presented an entanglement problem for any U.S. military personnel who approached a sprayed individual. Colonel Lorenz, *supra* note 2, at 76.

n123 "Standoff" capability refers to the optimum distance from the party against whom the non-lethal weapon will be applied to achieve the desired result. For example, some non-lethal weapons such as pepper spray or riot batons have no "standoff" capability since their use is limited to direct confrontations.

n124 Conducting the legal review for all non-lethal weapons is a specific duty imposed upon the Secretaries of the military departments and the CINC, United States Special Operations Command. DoD Dir. 3000.3, *supra* note 9, at 3. In addition, there are several other regulations that require a legal review for all weapon systems which will be procured to meet a military requirement of the armed forces of the United States. *See* U.S. DEPT OF DEFENSE Dir. 5000.1, *Defense Acquisition* (March 15, 1996) and U.S. Dep't Of DEFENSE REG. 5000.2-R, MANDATORY PROCEDURES FOR MAJOR DEFENSE ACQUISITION PROGRAMS (MDAPS) AND MAJOR AUTOMATED INFORMATION PROGRAMS (MAIS) ACQUISITION (March 15, 1996). The service regulations implementing the Department of Defense guidance concerning the legal review of weapon systems are: U.S. DEPT OF ARMY REG. 27-53, *Review of Legality of Weapons Under International Law* (January 1, 1979); U.S. Dept of Air Force Instruction 51-402, *Weapons Review* (May 13, 1994); and U.S. Dept of the Navy, Secretary of the Navy Inst. (SECNAVINST) 5000.2B, Subj: *Implementation of the Mandatory Procedures for Major and Non-Major Defense Acquisition Programs and Major and Non-Major Defense Information Technology Acquisition Programs* (December 1996).

n125 1907 Hague Convention IV Respecting the Laws and Customs of War on Land, Oct. 18, 1907, Section II Hostilities [hereinafter 1907 Hague Convention IV], Art. 22, *reprinted in* Documents on the Law of War 52 (Adam Roberts and Richard Guelff eds., 1982). Article 22 of the 1907 Hague Convention IV is viewed as customary international law by the United States. *See* General Counsel, Department of Defense Letter to Senator

Edward Kennedy (September 22, 1972), *reprinted in* 67 Am. J. Int'l Law 122 (1973).

n126 1907 Hague Convention IV, Art. 23 (e), *reprinted in* Documents on the Law of War 52 (Adam Roberts and Richard Guelff eds., 1982). The rules set forth in the 1907 Hague Convention IV Arts. 22 and 23 (e) are confirmed in the 1977 Geneva Protocol I Additional to the Geneva Conventions of 12 August 1949 [hereinafter Protocol I], and Relating to the Protection of Victims of International Armed Conflict, Dec. 12, 1977, Part III, Section I, Art. 35, *reprinted in* Documents on the Law of War 409 (Adam Roberts and Richard Guelff eds., 1982). The United State considers these rules as confirmed by Article 35 of Protocol I declarative of customary international law. *See* General Counsel, Department of Defense Letter to Senator Edward Kennedy (September 22, 1972), *supra* note 126 and Michael J. Matheson, *Session One: The United States Position on the Relation of Customary International Law to the 1977 Protocols Additional to the 1949 Geneva Conventions*, 2 Am. U. J. Int'l L. & Pol'y 419, 424 (1987). *See also* Michael Bothe ET AL., *New Rules For the Victims of Armed Conflict: Commentary on the Two 1977 Protocols Additional to the Geneva Convention of 1949*, 193-197 (1982).

n127 Protocol I, Art. 51(4), *reprinted in* Documents on the Law of War 415-16 (Adam Roberts and Richard Guelff eds., 1982). For further discussion on indiscriminate attacks *see* L. C. Green, *The Contemporary Law of Armed Conflict* 151-152 (1993) and *The Handbook of Humanitarian Law in Armed Conflicts* 111-113 (Dieter Fleck ed., 1995).

n128 Before the non-lethal weapon systems selected for Operation United Shield could be purchased off-the-shelf, a detailed review by Headquarters, U.S. Marine Corps was required. In light of the time factor, the evaluation and approval process was placed on a fast track and assigned to Colonel Gary W. Anderson, U.S. Marine Corps, at the Marine Corps Experimental Unit located at the Marine Corps Combat Development Command in Quantico, Virginia for coordination. As part of the approval process, a safety review was required. To meet this safety requirement and to move the process along quickly, the Marine Corps Systems Command issued a limited safety release and authorized the procurement of the selected non-lethal weapon systems. However, before the newly procured non-lethal weapon systems could be employed, a legal review of each was required. Colonel Lorenz, *supra* note 2, at 72.

n129 U.S. MARINE CORPS, ORDER 3430.7, MARINE CORPS PROGRAM FOR THE USE AND ACQUISITION OF NON-LETHAL WEAPONS (July 31, 1997) [hereinafter MCO 3430.7].

n130 *Id.* at 3. For the Marine Corps, the acquisition of non-lethal weapon systems involves the coordinated efforts of three separate commands. The actual acquisition of a non-lethal weapon system is the responsibility of the Commander, Marine Corps System Command (CBG). Determining non-lethal weapon requirements is the responsibility of the Commanding General, Marine Corps Combat Development Command (CG, MCCDC), and the responsibility for ensuring that the employment of the weapon is consistent with the policy in DoD Dir. 3000.3, *supra* is the responsibility of the Commandant, U.S. Marine Corps, Plans, Policies and Operations (PP&O) Department. As soon as a commander identifies an emergency need for a particular non-lethal weapon for the operation, the emergency acquisition process must be initiated. The emergency acquisition process begins with the submission of a Fleet Operational Needs Statement (FONS) to the CG, MCCDC along with an explanation of the special circumstances surrounding the request and the operational due date. In those circumstances where the commander desires a particular off-the-shelf weapon be purchased, the cost, make, model number, and manufacturer of the non-lethal weapon system must also be provided. Next, the FONS, along with the letter containing the special circumstances necessitating the purchase, will be routed concurrently to the CBG and to the cognizant offices of the Commandant, U.S. Marine Corps, Plans, Policies and Operations

Department, Operations Division, Security (POS) and Operational Law Branch of the Judge Advocate Division (JAO) for a review to determine whether the acquisition will meet the Department of Defense policy and legal requirements. See the emergency acquisition procedures for non-lethal weapons in paragraph 5.b. of MCO 3430.7.

n131 Operation Joint Endeavor was the name given to the U.S.-led NATO peace implementation operation in Bosnia-Herzegovina. Forces were deployed for this operation in response to the United Nations Security Council Resolution 1031. The mission for Operation Joint Endeavor was the enforcement of the provisions of the Dayton Peace Agreement. Lieutenant Commander Richard L. Brasel, U.S. Navy, Operation Joint Endeavor: *Operational Guidance From Principles of Operations Other than War* 1-15 (February 12, 1996) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island) and Lieutenant Colonel Christopher M. Fleck, U.S. Marine Corps, *Just Do Something: Measuring and Achieving Success in Peace Operations* 13-15 (November 14, 1997) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island).

n132 Brigadier General Roy E. Beauchamp, U.S. Army Material Command Deputy Chief of Staff for Research, Development and Acquisition is credited with the formation of BTIC. BTIC was created to meet the perceived acquisition and training requirements for operations such as Operation Joint Endeavor. Discussions with Lieutenant Colonel Kevin House, U.S. Army, Head of the QRO, and with Mr. Mike Agogino, a contract supporter of the QRO, on February 10, 1998.

n133 Headquarters, U.S. Army Material Command, Bosnia Technology Integration Cell Newsletter (BTIC) 1 (Issue No. 4 November 1997). The QRO may be reached by telephone at (703) 617-5756 or DSN 767-5756. Information regarding the QRO may also be found on the internet at website <http://amc.citi.net/amc/qro>.

n134 An emergency acquisition of material or training may be triggered by an urgent need, such as an emergent operation where U.S. forces will be placed in harm's way. Once the urgency requirement has been met, the QRO goes into high gear to obtain the requested material or training. Discussion with Lieutenant Colonel Kevin House, U.S. Army, Head of the QRO on February 10, 1998.

n135 AN ANTHOLOGY OF MILITARY QUOTATIONS 246 (Michael Dewar ed., 1990) [hereinafter *Military Quotations*].

n136 DoD Dir. 3000.3, *supra* note 9, at 3. *See also* footnote 9. An effort is underway to create a document which will provide multiservice tactics, techniques and procedures for the tactical use of non-lethal weapons. The second draft of this document still needs a great deal of work to flesh out the actual tactics, techniques and procedures to be employed. *See* Second Draft, Multiservice Tactics, Techniques, and Procedures For the Tactical Employment of Non-Lethal Weapons (Air, Land and Sea Application Center June 12, 1997) (copy on file with the author).

n137 The general training package should provide all members of the unit with important safety information to include any special first aid or emergency medical care for accidents involving the non-lethal weapon system to be used.

n138 Those members who will operate a non-lethal weapon system must understand how the system works.

Without a basic understanding of its functions and its capabilities, the operators will not be able to properly use the weapon system.

n139 As with all weapon systems, the tactics, techniques and planning considerations will change or be modified as the experience factor with the weapon system increases. The focus of this part of the instruction should be on the tactical use of the weapon system on the battlefield. In addition, as information becomes available, the training should be expanded to cover the planning for potential vulnerabilities or countermeasures which might be used against it and interoperability problems with other weapon systems. Also, training should be provided on the possible environmental effects of the system.

n140 From a logistical perspective, all equipment required for the use and movement of the weapon system must be understood. For example, during this portion of the training, instruction might be provided about special medical support units that should be deployed to handle medical problems created by the weapon system.

n141 The non-lethal weapon training package should be tailored to meet the specific capability requirements of the expressed or implied taskings within the assigned mission.

n142 As a mandatory part of the training program, all military members who will use the weapon system should be required to practice under an instructor's supervision. Included within this practical exercise should be training on the standard operating procedure (SOP) for each weapon system, training on safety concerns and a graduation test requiring operation of the system under simulated battlefield conditions.

n143 To facilitate expeditionary operations, the sustainment of the non-lethal weapon system will be critical. For this reason, those military members actually using the system need the knowledge and ability to handle all the common problems that occur with the weapon system. They must also be trained to repair the system in case of malfunction, breakage or the need to replace a worn component part.

n144 The training must provide instruction on the routine preventive maintenance cycle because regular preventive action may avoid potential problems and keep the system from requiring major repairs. As with all the unit's equipment, there must be a supply block for the spare parts for such repairs.

n145 Colonel Lorenz, *supra* note 2, at 74. In terms of training time, the typical training day for the Marines deployed for Operation United Shield was 10-12 hours for enlisted and 14-17 hours for officers. *Id.*

n146 The purpose for this training was to certify the I MEF and II MEF MEU attendees as non-lethal instructors for this POI. Discussions with Captain Vernon L. Graham, U.S. Marine Corps, SOTG, I MEF Trainer, on February 9, 1998, and with Captain Stephen Simpson, U.S. Marine Corps, on February 12, 1998. Captain Simpson is the Operations Officer to the U.S. Army's Basic Military Police Training Division at the U.S. Army Military Police School, Fort McClellan, Alabama. On June 12, 1998, the CG, MCCDC formally approved a course called the Non-Lethal Individual Weapons Instructor Course (NIWIC). The NIWIC is a "train the trainer" course which last 10 days given at the Marine Corps Detachment at Fort McClellan, Alabama.

n147 Discussions with Captain Vernon L. Graham, U.S. Marine Corps, SOTG, I MEF Trainer, on February 9, 1998.

n148 The standard Non-lethal Weapon Kit for each MEU in I MEF includes the following: 200 Riot Face Shields; 40 Full-length Riot Shields, Transparent; 200 Expandable Riot Batons w/Holster; 2 Riot Baton Training Suits; 12 Training Riot Batons; 13 Portable Bullhorns; 3 High Intensity Xenon Searchlights; 200 Disposable, Double, Restraining Wrist/Forearm/Ankle Cuffs; 27 Butt cuffs; 1250 Caltrops; 400 Inert Individual OC Canisters; 120 Inert Team OC Canisters, (MK9); 18 Inert High Volume Output, High Capacity OC Canisters; 81 - 25 RD 12 GA Shell Pouches; 162 - 40 MM Carrying Pouches; and 162 Sting Ball Grenade/Flash Bang Pouches. *Id.*

n149 Discussion with Captain Stephen Simpson, U.S. Marine Corps, on February 12, 1998. *See also* the I MEF, SOTG Non-Lethal Weapons Training Course Schedule for May 31, 1997. Colonel Gary Ohls, U.S. Marine Corps Reserve, personal letter of October 29, 1997, discussing the MEU training on non-lethal weapon systems. *See also* SOTG, I MEF training information received by FAX on February 9, 1998, from Captain Vernon L. Graham, U.S. Marine Corps (on file with the author).

n150 Discussion with Captain Stephen Simpson, U.S. Marine Corps, on February 12, 1998. Two partial POI training periods were provided to the U.S. Support Group in Haiti. The first involved the 82nd Airborne Command in September 1996, and the second involved 2d Tank Battalion, 2d Marine Division in March 1997. The POI training for the Army's 5th Corps took place in Germany in November 1997. *Id.*

n151 The term "MOS" has been selected to refer to the specialized training conducted by the military services for their officers and enlisted personnel. In each military service, different terms have developed to reflect this specialty training. For example, the Marine Corps uses "MOS" for both its enlisted and officers; the Army uses "MOS" for its enlisted but its officers are assigned to "branches" (such as, armor, air defense artillery, aviation, chemical, field artillery, infantry, military intelligence, engineer, etc.) and receive secondary specialties; the Air Force uses the term "Air Force specialty code" (AFSC) for both its enlisted and officers; and the Navy uses the term "rates" with a "Navy enlisted classification" (NEC) for the sub-specialty training for its enlisted, and "designators" (such as surface warfare, air warfare, submarine warfare, civil engineer, etc.) for its officers and later (upon completion of appropriate schooling and billet assignments in that specialty) receive what is called a "proven specialty" (P code).

n152 A military operation other than war (MOOTW) is also frequently referred to as an operation other than war (OOTW). The term MOOTW has been defined as encompassing different types of activities to include peace type operations, as well as a wide range of non-traditional operations "where the military instrument of national power is used for purposes other than the large-scale combat operations usually associated with war." JOINT CHIEFS OF STAFF, JOINT PUB. 3-0, DOCTRINE FOR JOINT OPERATIONS V-1 (FEBRUARY 1, 1995). Joint Doctrine sets forth 16 different types of MOOTWs: Support to Insurgency, Strikes and Raids, Show of Force Operations, Recovery Operations, Protection of Shipping, Peace Operations, Noncombatant Evacuation Operations, Nation Assistance or Support to Counterinsurgency, Military Support to Civil Authorities, Humanitarian Assistance, Ensuring Freedom of Navigation and Overflight, Enforcing Exclusion Zones, Enforcement of Sanction/Maritime Intercept Operations, DoD Support to Counterdrug Operations, Combating Terrorism, and Arms Control. JOINT CHIEFS OF STAFF, JOINT PUB. 3-07, JOINT DOCTRINE FOR MILITARY OPERATIONS OTHER THAN WAR III-1 (JUNE 16, 1995). The U.S. Army definition for an OOTW is found in U.S. DEP'T ARMY, FIELD MANUAL 100-5, *Operations* 2-0 (June 1993). In the following quote, General Charles C. Krulak, Commandant of the U.S. Marine Corps, implies that MOOTWs are the most likely type of conflict on the horizon: "Future war is most likely not the son of Desert Storm; rather it will be the stepchild of Somalia and Chechnya." Robert Holzer, *Krulak Warns of Overreliance on Technology*, Defense News, October 7-13, 1996 at 4, 32.

n153 This confrontation between the United States and Libya occurred as the result of Libya's claim to the Gulf of Sidra as "historic waters." The United States asserted that Libya's claim violated international law and documented this objection by diplomatic protest and by conducting a number of naval exercises (freedom of navigation operations) in the Gulf of Sidra. Mark J. Valencia, *Law of the Sea in Transition: Navigation Nightmare for the Maritime Powers?*, 18 J. Mar. L. & Com. 541 (October 1987).

n154 For an excellent discussion of the legal underpinning for a noncombatant evacuation operation see Major Steven F. Day, *Legal Considerations in Noncombatant Evacuation Operations*, 40 Naval Law Review 45 (1992).

n155 U. S. military forces are serving in the NATO controlled "Stabilization Force" (SFOR) formerly known as the "Implementation Force" (IFOR) currently being used in the former Yugoslavia. This ongoing military operation is a Chapter VII peace enforcement operation that was mandated by the United Nations in 1995. S.C. Res. 1031 (Dec. 15, 1995), U.N. Doc. S/RES/1031 (1995). For a comprehensive article on the disintegration of the former Yugoslavia see *The Balkan Survey*, The Economist, January 24, 1998 at 54-55. The general framework for peace in Bosnia and Herzegovina is set forth in the Dayton Peace Accords and the Annexes thereto. See U.N. Doc. S1995/999, Annex. For more information on the United Nations involvement in the former Yugoslavia see S.C. Res. 743 (Feb. 21, 1992), U.N. Doc. S/RES/743 (1992); S.C. Res. 757 (May 30, 1992), U.N. Doc. S/RES/757 (1992); and S.C. Res. 836 (June 4, 1993), U.N. Doc. S/RES/836 (1993).

n156 Operation Sea Angel was a foreign disaster relief operation conducted by the United States after a typhoon struck the coast of Bangladesh in May of 1991. See Memorandum of Understanding Between Government of the Peoples Republic of Bangladesh and the United States to Specify the Legal Status of the United States Pacific Command Disaster Relief Task Force May 20, 1991.

n157 Operation Just Cause is an example of a unique MOOTW conducted by the U.S. military to restore democracy in Panama and to remove from power General Manuel Antonio Noriega who was involved in drug trafficking. For more information about Operation Just Cause see Martin C. Arostegui, *Twilight Warriors: Inside the World's Special Forces* 276-297 (1997).

n158 Mission creep is a term used to describe a change to the original mission after the operation has begun. For a discussion of mission creep see *Operations Other Than War*, *supra* note 13, at 32-34.

n159 From Ferdinand Foch's interview in April 1919 cited in *Military Quotations*, *supra* note 135, at 172.

n160 Lewer and Schofield, *supra* note 13, at 118-119.

n161 For information on the Department of Defense concept for non-lethal weapons see Barry ET AL., *supra* note 6, at 9 and the *Joint Concept for Non-lethal Weapons* produced at the direction of the Commandant of the Marine Corps by the Joint Non-Lethal Weapons Directorate, dated January 5, 1998 at 6. Some feel strongly that non-lethal weapon systems should never be used as stand-alone systems. They argue that if the situation requires the deployment of U.S. military forces, a need for lethal force in self-defense is by definition foreseeable. See also David B. Kirkwood, *Non-lethal Weapons In Military Operations Other Than War* 6 (June 14, 1996) (unpublished manuscript on file at the library of the Naval War College, Newport, Rhode Island) and David C. Morrison, *More-Than-Lethal Weapons*, National Journal, July 22, 1995 at 1919.

n162 DoD Directive 3000.3, *supra* note 9, at 2.

n163 *Id.* Non-lethal weapons provide additional use of force options which are not intended to diminish or replace lethal capabilities for self-defense or mission accomplishment. In effect, there is no obligation for a commander to employ non-lethal weapons rather than lethal weapons as a response in self-defense (to a hostile act or a demonstration of hostile intent) or for mission accomplishment. During an interview, the Assistant Secretary of Defense, H. Allen Holmes, indicated that U.S. military forces would always have the option of using lethal force in self-defense. *Warfighter's Want Weapons that Disable But Don't Kill*, National Defense, July/August 1996 at 24.

n164 Chairman, Joint Chiefs of Staff Instr. 3121.01, *Standing Rules of Engagement for US Forces* (October 1, 1994) [hereinafter STANDING RULES OF ENGAGEMENT].

n165 *See* DoD Dir. 3000.3, *supra* note 9, at 2 and National Defense, *supra* note 163, at 24.

n166 *See* General Zinni's interview on the 60 Minutes: CBS television broadcast, *supra* note 5.

n167 Lewer and Schofield, *supra* note 13, at 57.

n168 For a discussion of "battlespace effectors" see Williams, *supra* note 35.

n169 Currently, non-lethal technology is being developed to stop motor vehicles through microwaves or high powered acoustics. Michael Raphael, *Stop That Tank, But Don't Destroy It*, Philadelphia Inquirer, November 22, 1997 at D10. *See also* 60 Minutes: CBS television broadcast, *supra* note 5.

n170 Professional agitators are individuals who in a calculated and deliberate manner build up the emotional tension within the mob and use the mob to achieve a specific fixed objective. Usually, they will employ stooges or subordinate leaders to shout agreement with statements they make justifying a suggested mob action. Raymond M. Momboisse, *Confrontations, Riots and Urban Warfare* 7 (1969).

n171 Mob leaders focus, guide, control, and incite the crowd concerning a specific incident so that possible violent action will be taken. *Id.*

n172 Activists are vocal minorities supporting the agitator. They are normally short tempered hotheads whose ultimate objective is to incite others to violence. *Id.*

n173 JOINT CHIEFS OF STAFF, JOINT PUB. 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 329 (March 23, 1994).

n174 *Standing Rules of Engagement*, *supra* note 164.

n175 *Id.* at 1. The Peacetime Rules of Engagement for U.S. Forces were promulgated by a Memorandum of

the Secretary of the Joint Staff, October 28, 1988. PEACETIME RULES OF ENGAGEMENT FOR U.S. FORCES (October 28, 1988).

n176 *Standing Rules of Engagement*, *supra* note 164, at A-1.

n177 *Id.*

n178 For a discussion of the ROE bases see Professor Richard J. Grunawalt, *The JCS Standing Rules of Engagement: A Judge Advocates Primer*, 42 A.F. L. Rev. 247 (1997) and Captain J. Ashley Roach, JAGC, USN, *The Rules of Engagement*, Naval War College Review 47-48 (January/February 1983).

n179 Carl von Clausewitz, *On War* 87 (Michael Howard and Peter Paret eds., 1984).

n180 Each CINC receives guidance on foreign policy objectives for his area of responsibility from the National Command Authorities (NCA). For the United States, the President has the overall responsibility to establish and implement foreign policy. U.S. Const. art. II. In addition, the President is the Commander in Chief of the U.S. armed forces. *Id.* The U.S. Congress also has a constitutional role involving the armed forces. Article I section 8 of the U.S. Constitution provides in part: "Congress shall have the power . . . to raise and support Armies . . .; to provide and maintain a Navy; [and] to make Rules for the Government and Regulation of land and naval forces." The ROE provide a means for the civilian leadership of the United States to exercise control over the use of force by the U.S. military.

n181 STANDING RULES OF ENGAGEMENT, *supra* note 164, at A-3.

n182 *Id.*

n183 *Id.*

n184 The J-3 is one of the standard directorates of a staff provided to the JTF commander to assist in the decision making and execution process for an assigned mission. Other standard JTF directorates would include the J-1 (Manpower and Personnel), the J-2 (Intelligence), the J-4 (Logistics), the J-5 (Plans and Policy), and the J-6 (Command, Control, Communications and Computer (C4) Systems). In addition, the JTF staff will have special staff groups who will "furnish technical, administrative, and tactical advice and recommendations to the Commander and other staff officers." The Joint Chiefs of Staff, Joint Pub. 0-2, UNIFIED ACTION ARMED FORCES (UNAAF) IV-12-IV-14 (February 24, 1995). Examples of special staff groups are: the Staff Judge Advocate, the Medical Officer, the Dental Officer, Comptroller, and the Public Affairs Officer. The sole function of staff members of the several directorates and the special staff groups is to support the commander. Staff members have only the authority delegated to them by the commander. *Id.* at IV-12.

n185 The domestic law of the United States includes the U.S. Constitution, federal statutes and regulations, court decisions, and common law.

n186 The U.S. Constitution Article VI, Clause 2 states in part that "this constitution, and the laws of the

United States which shall be made in Pursuance thereof, and all Treaties made, or which shall be made, under the authority of the United States shall be the supreme law of the land[.]” Under this provision of the U.S. Constitution, the law of armed conflict has been made a part of United States law which every servicemember has a duty to obey. Although several major bodies of law, such as the law of the sea, the law of neutrality and the law of armed conflict, are part of the larger body of international law and might be applicable to the preparation of the ROE, the focus for this paper will be limited solely to the law of armed conflict. To ensure compliance with the law of armed conflict by the U.S. armed forces, the Department of Defense Law of War Program was implemented. U.S. DEP’T OF DEFENSE DIR. 5100.77, DOD LAW OF WAR PROGRAM (July 10, 1979). Violations of the law of armed conflict by U.S. military members will be prosecuted under the Uniform Code of Military Justice. Paragraph 4.a of SECNAVINST 3300.1A states “the [Department of the Navy] will comply with the law of armed conflict in the conduct of military operations and related activities in armed conflicts.”

n187 DEPARTMENT OF DEFENSE DICTIONARY OF MILITARY AND ASSOCIATED TERMS, *supra* note 173, at 215.

n188 Customary international law has become a part of the national law of the United States. The Supreme Court of the United States ruled in the renowned case, *The Paquete Habana*, in the absence of applicable treaty law or a controlling legislative statute, executive regulation or judicial precedent, that customary international law is to be followed. *The Paquete Habana*, 175 U.S. 677, 20 S.Ct. 290, 299 (1900). *See also* 1 Restatement (Third), sec 111, Reporter’s Notes 2 and 3 and Introductory Note. “The customary international law of armed conflict derives from the practice of military and naval forces in the field, at sea and in the air during hostilities.” U.S. DEP’T OF NAVY ANNOTATED SUPPLEMENT TO THE COMMANDER’S HANDBOOK ON THE LAW OF NAVAL OPERATIONS, NWP 1-14M/MCWP 5.2.1/COMDTPUB P5800.1, 5-8 (15 November 1997) [hereinafter ANNOTATED SUPPLEMENT].

n189 For a presentation at the VXIII Airborne Corps ROE Conference at Fort Bragg, North Carolina in May of 1996, Colonel James R. Schwenk, U.S. Marine Corps, coined the following jingle, “ROE rhymes with three not SJA.” The purpose of this jingle was to emphasize that the responsibility for preparing the ROE rests with the J-3. The J-3 is the JTF staff section responsible for planning and conducting operations. *See also* Grunawalt, *supra* note 178, at 248.

n190 Commander Dave Wagner, U.S. Navy, during his presentation on August 8, 1997, at the Naval Justice School for the Law of Military Operations course, stated that Brigadier General M. R. Berndt, U.S. Marine Corps, Director, Joint Training Analysis and Simulation Center and the J-7, U.S. Atlantic Command had approved the inclusion of the ROE cell concept in the new draft of the Joint Tactics, Techniques and Procedures Publication. *See* WORKING DRAFT, THE JOINT CHIEFS OF STAFF JOINT PUBLICATION 1-04, JOINT TACTICS, TECHNIQUES AND PROCEDURES (JTTP) FOR LEGAL SUPPORT TO MILITARY OPERATIONS (copy on file with the author). Commander Wagner also indicated that the ROE cell concept is being included in the new draft of The Joint Chiefs of staff the Joint Publication 5-00.2, *Joint Task Force Planning Guidance and Procedure*.

n191 A specialist like an engineer can provide the ROE cell with a wealth of information concerning the structural weaknesses of a target, the best weapon system to destroy a target and the environmental impact that might be caused by the target’s destruction.

n192 The JPG is the core planning group for crisis action planning within a JTF. Discussion with Commander Dave Wagner, U.S. Navy, Joint Training Analysis and Simulation Center, the J-7, U.S. Atlantic Command on February 12, 1998.

n193 STANDING RULES OF ENGAGEMENT, *supra* note 164, at A-1.

n194 Any other rule would disregard the equal application of the law of armed conflict to both sides of the conflict. Green, *supra* note 127, at 327.

n195 Article 51 of the United Nations Charter states:

Nothing in the present Charter shall impair the inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security. Measures taken by Members in the exercise of this right of self-defense shall be immediately reported to the Security Council and shall not in any way affect the authority and responsibility of the Security Council under the present Charter to take at any time such action it deems necessary in order to maintain or restore international peace and security.

The term "inherent right of individual and collective self-defense" set forth in Article 51 of the United Nations Charter is intended to include the right of self-defense under customary international law as it existed when the United Nations Charter was written. J. L. Brierly, *The Law of Nations* 416-21 (6th ed. 1963); Gerhard von Glahn, *Law Among Nations* 129-33 (6th ed. 1992); and Annotated Supplement, *supra* note 188, at 4-10. For a discussion of self-defense as an inherent right see Yoram Dinstein, *War, Aggression and Self-Defense* 179-82 (2d ed., 1994). See also an excellent discussion of anticipatory collective self-defense in George K. Walker's article, *Anticipatory Collective Self-Defense in the Charter Era: What the Treaties Have Said*, in *The Law of Military Operations: Liber Amicorum Professor Jack Grunawalt* 365-425 (Michael N. Schmitt ed., Vol. 72, 1998).

n196 Sally V. Mallison and W. Thomas Mallison, as part of their discussion on naval targeting, reviewed the concept of self-defense under both the English and French texts of Article 51 of the United Nations Charter. The Mallisons found the English text of Article 51 to be inartfully drafted and inconsistent with the negotiating history. The French text was found to be consistent with the negotiating history since it used "the term 'aggression armee' which includes, but is not limited to, armed attack." *The Law of Naval Operations* 263 (Horace B. Robertson, Jr. ed. 1991). The negotiating history of Article 51 shows that necessary and reasonable anticipatory self-defense was intended to be retained as an essential element of individual and collective self-defense. *Id.* at 263-64 and Stanimar A. Alexandrov, *Self-defense Against the Use of Force in International Law* 97-99 and 143-44 (1996). In addition, Professor Leslie Green a renowned scholar of the law of armed conflict has stated "Article 51 of the United Nations Charter must include the right of anticipatory self-defense since a failure to reach this conclusion would mean nations who are not members of the United Nations would have a greater right of self-defense than those who are." This statement was made during a discussion of this issue on December 17, 1997. See also Green, *supra* note 127, at 320-321. Part of the right of self-defense is the right to prevent imminent attack. Activity reasonably construed as a direct and immediate threat to the safety, security or existence of a State gives that State the right to take action in anticipatory self-defense. Burdick H. Brittin, *International Law for Seagoing Officers* 33 (5th Ed. 1986). Two specific examples of anticipatory self-defense are the 1842 *Caroline* case and President Kennedy's ordering of the 1962 Cuban blockade. *The Law of Naval Operations*, *supra* note 196, at 262-66 INTERNATIONAL AND OPERATIONAL L. DEPT THE JUDGE ADVOCATE GENERAL'S SCHOOL, U.S. ARMY, JA-422, OPERATIONAL LAW HANDBOOK,

4-5, Charlottesville, Virginia 4-5 (1996)[hereinafter OPERATIONAL LAW HANDBOOK].

n197 OPERATIONAL LAW HANDBOOK, *supra* note 196, at 4-5.

n198 *Standing Rules of Engagement*, *supra* note 164, at A-4.

n199 The term hostile act is defined as "an attack or other use of force by a foreign force or a terrorist unit (organization or individual) against the United States, [U.S.] forces, and in certain circumstances, [U.S.] citizens, their property, [U.S.] commercial assets, and other designated non-[U.S.] forces, foreign nationals and their property." STANDING RULES OF ENGAGEMENT, *supra* note 164, at A-5.

n200 The term hostile intent is defined as "the threat of [the] imminent use of force by a foreign force or terrorist unit (organization or individual) against the United States, [U.S.] forces, and in certain circumstances, [U.S.] citizens, their property, [U.S.] commercial assets, and other designated non-[U.S.] forces, foreign nationals and their property." *Id.*

n201 STANDING RULES OF ENGAGEMENT, *supra* note 164, at A-5.

n202 Green, *supra* note 127, at 331.

n203 Collateral damage refers to the destruction of civilian property as the result of an attack upon a military objective, and it is considered lawful if the commander has taken steps to avoid excessive damage to civilian property. Like incidental injury to civilians, the commander must minimize collateral damage to civilian property consistent with mission accomplishment and force security. Protocol I, Art. 57 (4), *reprinted in* Documents on the Law of War 420 (Adam Roberts and Richard Guelff eds., 1982); Bothe ET AL., *supra* note 126, at 359-367, 372-73; Matheson, *supra* note 126, at 426; and Green *supra* note 127, at 120. *See also* ANNOTATED SUPPLEMENT, *supra* note 188, at 8-4 to 8-5.

n204 Incidental injury refers to the injury and/or death of civilians from an attack upon a military objective. The principle of proportionality requires commanders to consider the effect that a future attack may have upon the civilian population in their pre-attack planning. *See* Protocol I, Arts. 48, 49 and 50, *reprinted in* Documents on the Law of War 414-415 (Adam Roberts and Richard Guelff eds. 1982). Attacks are "acts of violence against the adversary, whether in offense or defense." Protocol I, Art. 49, *reprinted in* Documents on the Law of War 414 (Adam Roberts and Richard Guelff eds. 1982). For more information on the definition and scope of the term "attack" *see* Bothe ET AL., *supra* note 126, at 286-291. *See also* footnote 219.

n205 *Standing Rules of Engagement*, *supra* note 164, at A-5. *See also* footnotes 199 and 200.

n206 *Standing Rules of Engagement*, *supra* note 164, at A-4.

n207 *Id.*

n208 *Id.* at A-4 to A-5.

n209 *Id.* at GL-10. Under the right of self-defense individuals have "the authority to use all means available and to take all appropriate action to defend themselves and other [U.S.] personnel in their vicinity." *Id.* at GL-11.

n210 DoD Dir. 3000.3, *supra* note 9, at 2. This language was lifted almost verbatim from the Standing Rules of Engagement. STANDING RULES OF ENGAGEMENT, *supra* note 164, at A-3. *See also* footnote 163.

n211 To review the classified definition of "all necessary means available" *See* THE STANDING RULES OF ENGAGEMENT, *supra* note 164, at GL-4.

n212 *Id.* at A-6.

n213 *Id.* at A-6.

n214 *Id.* at A-7.

n215 ANNOTATED SUPPLEMENT, *supra* note 188, at 5-4. *See also* Green, *supra* note 127, at 118-119. Professor Green explains that the concept of military necessity cannot be used to reduce the entire body of the law of armed conflict to a "code of military convenience." *Id.* 118. In other words "an unlimited doctrine of military necessity cannot be accepted today." von Glahn, *supra* note 195, at 697. Under the principle of necessity for self-defense force is not warranted until peaceful means have been found wanting or would clearly be futile. Dinstein, *supra* note 195, at 202.

n216 Protocol I, Art. 52 (2), *reprinted in* Documents on the Law of War 417 (Adam Roberts and Richard Guelff eds., 1982). The United States considers this statement to be part of the customary international law. General Counsel, Department of Defense, letter of September 22, 1972, *reprinted in* 67 Am J. Int'l L. 123-24 (1973). The term "definite military advantage" is often referred to as the advantage gained by the neutralization of an enemy's war-fighting and war-sustaining capability. *See* ANNOTATED SUPPLEMENT, *supra* note 188, at 8-2.

n217 Under the Standing Rules of Engagement, force may only be used in self-defense or against those forces who have been declared hostile (Adversary forces are most often declared hostile for mission accomplishment purposes.). For the U.S. military, the authority to declare a force hostile is limited under the Standing Rules of Engagement. STANDING RULES OF ENGAGEMENT, *supra* note 164, at A-5 to A-6. Once an adverse force has been declared hostile by appropriate authority, U.S. military units may engage that force (including their military equipment and sustainment structure) worldwide (except in neutral territory) without first observing a hostile act or a demonstration of hostile intent by that adverse force. *Id.* In neutral territory (which includes neutral airspace, neutral water and neutral lands), all acts of hostility are prohibited. 1907 Hague Convention V Respecting the Rights and Duties of Neutral Powers and Persons in Case of War on Land, Oct. 18, 1907, Chapter I -- The Rights and Duties of Neutral Powers [hereinafter 1907 Hague Convention V], Art. 1, *reprinted in* Documents on the Law of War 63 (Adam Roberts and Richard Guelff eds., 1982). When a neutral State is unwilling, unable or otherwise fails to enforce its obligation to prevent unlawful belligerent use of its territory, an exception arises under the law of neutrality which allows for the engagement of those belligerent forces operating within the neutral's territory by the other belligerent. Green, *supra* note 127, at 260-261; von Glahn, *supra* note 195, at 847; and ANNOTATED SUPPLEMENT, *supra* note 188, at 7-6. For

U.S. military forces this exception is known as self-help. Self-help is a remedy available under international law to those States whose rights have been violated. There are a variety of different self-help remedies. In addition, to the forcible means of self-help (also known as armed self-help or war), there are non-forcible means such as the severing of diplomatic relations or the declaring of a foreign diplomat *persona non grata*. For a discussion of self-help see von Glahn, *supra* note 195, at 633-45; Dinstein, *supra* note 195, at 175; and Alexandrov, *supra* note 196, at 11-19 (1996).

n218 *See* footnote 203.

n219 The incidental injury of civilians during an attack on a legitimate military target is lawful if the commander has taken reasonable precautions to minimize civilian casualties consistent with mission accomplishment and force security. Protocol I, Art. 57 (4), *reprinted in* Documents on the Law of War 420 (Adams Roberts and Richard Guelff eds. 1982); Bothe ET AL., *supra* note 126, at 359-367, 372-73; Matheson, *supra* note 126, at 426; and Green *supra* note 127, at 120. *See also* Annotated Supplemental, *supra* note 188, at 8-4 to 8-5. *See also* footnote 204.

n220 Brittin, *supra* note 196, at 11 and von Glahn, *supra* note 195, at 17-20. See the discussion of customary international law in footnote 188.

n221 Operation Desert Storm, sometimes called the "Persian Gulf War," began when Phase I (the Strategic Air Campaign) started on January 16, 1991. This operation was the military response to Iraq's invasion of Kuwait on August 2, 1990. The victory of the United States-led coalition over the Iraqi forces was swift and decisive. *Conduct of the Persian Gulf War*, Final Report To Congress (Pursuant to Title V of the Persian Gulf Conflict Supplemental Authorization and Personnel Benefits Act of 1991) (April 1992) [hereinafter Title V Report].

n222 During Operation Desert Storm, coalition forces took extraordinary steps to minimize the damage to civilian property and the risk of injury to civilians. To the degree feasible after taking into account allowable risk to coalition land, naval and air forces, attacks were executed within populated areas with munitions offering the highest degree of accuracy available in order to reduce the risk of incidental injury to the civilian population and collateral damage to civilian objects. *Id.* at 611-17.

n223 STANDING RULES OF ENGAGEMENT, *supra* note 164, at B-1.

n224 *Id.* at B-1.

n225 *Id.*

n226 *See* Grunawalt, *supra* note 178. For a discussion of the bases for the ROE see pages 36-38.

n227 STANDING RULES OF ENGAGEMENT, *supra* note 164, at B-1. The message formats and examples are listed in Appendix E to Enclosure B on pages B-E-1 through B-E-7 of the Standing Rules of Engagement.

n228 One advocate of change is Major Vaughn Ary, a U.S. Marine Corps judge advocate. *See* Major Vaughn Ary, *New Rules of Engagement For Today's Missions* (1996) (unpublished manuscript on file with the author who is attending the Marine Corps Command and Staff College in Quantico, Virginia). In this paper, Major Ary argues that the MOOTW is a different type of operation which sets forth different mission objectives and use of force requirements. Since the MOOTW is unlike traditional armed conflict, he recommends a major change to the Standing Rules of Engagement so that U.S. military forces may use force in circumstances other than self-defense to accomplish the mission. Implicitly, he argues that this change is needed to allow the application of non-lethal weapons during a MOOTW. *Id.* at 3-5.

n229 There have been no major changes recommended by the CINCs to the Standing Rules of Engagement. This statement is based on a discussion with Captain Jane Dalton, U.S. Navy, Office of the Legal Counsel to the Chairman of the Joint Chiefs of Staff on December 8, 1997, and on discussions with representatives from the various CINC legal offices who attended the Non-lethal Weapons Standing Rules of Engagement Conference in Quantico, Virginia on January 7, 1998. However, there have been some minor cosmetic changes recommended to the Standing Rules of Engagement. Among those recommended changes is a proposal to consolidate all use of force rules for U.S. military units into one document. This consolidation is designed to add the Commandant of the U.S. Coast Guard Use of Force Instruction for Maritime Interdiction Operations and Maritime Law Enforcement Operations to the special theater level ROE in Enclosure C to the Standing Rules of Engagement. For a copy of the Commandant of the U.S. Coast Guard Use of Force Instruction *see* Chapter 4 of COMDTINST M16247.1A. Another recommended change is to include a brief discussion of the ROE cell concept within the Standing Rules of Engagement. For a discussion of the ROE cell concept *see* pages 39-40. To avoid confusion, there is also a recommendation to clarify the term "all necessary means available." It is recommended that this term be clarified on the page where it first appears in the Standing Rules of Engagement. The special definition for the term "all necessary means available" may be found on page GL-4 of the Standing Rules of Engagement. Furthermore, there is a recommendation to clarify the terms OPCON versus TACON with regard to military units assigned to operations under U.S. Coast Guard control. In addition, the movement to develop a separate "Non-lethal Weapons Annex" similar to other annexes already in the Standing Rules of Engagement was determined to be unnecessary at the conference sponsored by the JNLWD in Quantico, Virginia, on January 7, 1998. For more information on the conference *see* CMC messages R 041445Z Dec 97 and R 131217Z Jan 98 and the Director, JNLWD letter of January 15, 1998, containing the minutes from the conference (copy on file with the author).

n230 However, this does not mean that every application of a non-lethal weapon system will require a specific supplemental measure within the ROE before it may be employed.

n231 Although a few supplemental measures scattered throughout the various categories in Enclosure B deal with non-lethal weapons, most do not. This means, that to prepare the portion of the ROE that deals with the employment of non-lethal weapons, the drafter of the ROE must either modify supplemental measures which deal with lethal weapons or utilize spares to create them. *See* the STANDING RULES OF ENGAGEMENT, *supra* note 164 (Enclosure B).

n232 DoD Dir. 3000.3, *supra* note 9, at 3.

n233 The U.S. Council on Foreign Relations used this quotation from Graham Green to encourage the Department of Defense to pursue the development and exploration of non-lethal weapons. *Open Door For Nonlethals*, Defense News, May 6-12, 1996 at 18.

n234 "THE JOINT CHIEFS OF STAFF," *Joint Vision 2010: America's Military Preparing for Tomorrow*, July 1995.

n235 John B. Alexander, *Shoot, But Not To Kill: Non-lethal Weapons Have Yet To Establish A Military Niche*, *Jane's International Defense Review*, No. 6, 1996 at 77.