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14. ABSTRACT Since the 1960's non-lethal weapon (NLW) technology has continued to grow and be slowly incorporated into the U.S. military arsenal. With further advances in technology more NLWs will enter the battle space. The variety of missions assigned to U.S. forces that are more suitable for NLWs has also increased. The need for operational planners to understand the capabilities and limitations of these weapons is paramount in developing sound and effective rules of engagement (ROE) for deployed troops. Troops must be trained on NLW specific ROE and those ROE must be continually evaluated to ensure their applicability to current conditions in the area of operations. Failing to provide NLW specific ROE can limit or prevent their use by deployed forces and lead to unnecessary casualties. The ROE for NLWs must also provide a seamless transition from non-lethal to lethal fires to ensure the safety of troops when required.					
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It is called a weapon for a reason: the need for Non- Lethal Weapon specific Rules of Engagement.

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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Abstract

Since the 1960's non-lethal weapon (NLW) technology has continued to grow and be slowly incorporated into the U.S. military arsenal. With further advances in technology more NLWs will enter the battle space. The variety of missions assigned to U.S. forces that are more suitable for NLWs has also increased. The need for operational planners to understand the capabilities and limitations of these weapons is paramount in developing sound and effective rules of engagement (ROE) for deployed troops. Troops must be trained on NLW specific ROE and those ROE must be continually evaluated to ensure their applicability to current conditions in the area of operations. Failing to provide NLW specific ROE can limit or prevent their use by deployed forces and lead to unnecessary casualties. The ROE for NLWs must also provide a seamless transition from non-lethal to lethal fires to ensure the safety of troops when required.

Introduction

To some it would seem odd that the military would pursue non-lethal weapons (NLWs) given the classical fight to the death mentality instilled in most armed forces. The thought of two armies meeting on the battlefield in which neither side suffers any deaths or life long injuries is unimaginable. Two thousand years of recorded history has shown the carnage inflicted when two armed groups collide and the high death tolls that follow. The advent of non-lethal weapons was aimed at preventing unnecessary death and suffering in situations where only a small amount of force was required to stop a threatening action. With the creation of these weapons has also come a moral and ethical question over how and when they can be employed to be non-lethal but also remain humane.

As U.S. forces are called upon to engage in non-traditional warfare and peacekeeping the need for non-lethal weapons will persist and expand. The ability to disperse riots or mobs of civilians without unnecessary loss of life will continue to be a challenge for the soldier in the field. The tactics to employ NLWs will be taught to soldiers by their parent services, but the rules of engagement (ROE) of when to use the NLW will fall to the Combatant Commander whose theater the weapons will be used in. The staff of the Commander must ensure the ROE meet the needs of both the situation and the troops who will be using them.

Just because a NLW is not designed to kill does not mean it does not need clearly identified ROE. The Department of Defense defines a NLW as “explicitly designed and primarily employed to incapacitate personnel or material, while minimizing fatalities and

permanent injury to personnel and undesired damage to property and the environment.”¹

Several of these devices if misused can maim or kill. Any perceptions that using a NLW is a less provocative use of force or alleviates the risk of fatalities are misplaced. International and domestic reaction to misuse could be damaging to both the Commander and mission accomplishment. NLWs must be treated with the same respect and thorough understanding as lethal arms. This challenge will only continue to grow as more NLW technologies are developed and fielded.

The purpose of this paper is to stress the need for NLW specific ROE to be incorporated into the entire planning process. The introduction of both new and more widely used traditional NLWs represents a challenge to operational planners. What are the NLW specific ROE that need to be assigned such that forces in the field know when and under what circumstances to use them? Staffs must understand the capabilities and limitations of the NLWs in the field to develop appropriate ROE for their use. Relying on traditional ROE based on lethal weapons may prevent the use of NLWs by combat forces leading to preventable casualties and undesired public perception of overly hostile U.S. forces.

History of Non-Lethal Weapons

It is ironic that some of the first non-lethal weapons were developed on the basis of one of the most feared lethal arms; chemical weapons.² Tear gas became a popular riot control agent in the 1960’s and 70’s during political demonstrations in the United States. Developed in 1928 CS, named for its inventors Corson and Stoughton, is an irritant chemical

¹ Kennedy, Harold. “U.S. troops find new uses for non-lethal weaponry.” National Defense, (March 2002): 26

² Davison, Neil. “The Early History of “Non-Lethal” Weapons.” Unpublished Research Paper, University of Bradford, UK: 2006. 4

that affects the respiratory system.³ While widely used during civil unrest and riots it should be pointed out that over 15 million pounds of non-lethal agents in the form of CS were used in Vietnam by American military forces.⁴

Refinement of kinetic non-lethal impact rounds also expanded during the 1960's and 1970's. As early as 1958 skipping rounds were being used to control crowds in Asia.⁵ The device was a projectile that was fired at the ground and meant to bounce or skip towards the intended target. The desired effect was to hit the protestor's legs, as a direct impact could be fatal or cause severe injury. By 1970 the British had designed a similar device made of rubber for use in Northern Ireland.⁶ In the United States the "bean bag" round was developed which consisted of lead shot in a canvas pouch.⁷

Another line of research was in the realm of electrically charged weapons intended to stun or momentarily incapacitate a suspect via electrical shock. The early electric weapons were derivatives of a basic cattle prod. In 1970 John Cover invented the TASER, which launched a projectile attached to a power source via conductive wire into the target.⁸

By the late 1970's there were multiple non-lethal systems being developed and tested. Everything from sticky foams (adhesive gels to detain personnel) to optical devices meant to disorient the suspect. Research was also done on biological agents, malodorants (foul smelling chemicals that would make it unbearable to stay in an area where they were released), and acoustic devices. Civilian requirements for non-lethal weapons continued due

³ Ibid., 7

⁴ Ibid., 8

⁵ Ibid.

⁶ Ibid.

⁷ Ibid., 11

⁸ Ibid., 13

to law enforcement agencies desiring a non-lethal alternative for subduing crowds and apprehending suspects.

Research continued through the 1980's and 1990's with militaries conducting most of the research and development of non-lethal capabilities since few police forces could afford such programs. In 1997 the Commandant of the Marine Corps was designated as the Department of Defense's executive agent for developing NLWs.⁹

During Operation United Shield in Somalia the U.S. Marine Corp was a potential test bed for non-lethal weapons systems in the field. When Marines landed in 1995 they carried with them 40mm non-lethal rounds, 12-gauge non-lethal rounds, pepper spray, stinger grenades, and two types of foam (sticky and aqueous).¹⁰ None of the non-lethal weapons systems carried by the Marines were used. But the rules of engagement the Marines were provided had been received just prior to the landing and some were ambiguous as to the transition from non-lethal to lethal fires if needed.¹¹

Today the Pentagon has several systems in development. Directed energy systems such as Raytheon's Active Denial System which delivers a painful burning sensation to the upper layer of the skin, when exposed to its beam, are designed to disperse crowds.¹² Anti-traction lubricants that make surfaces too slippery to walk on, Kevlar nets that can ensnare targets 30 feet away and adjustable firmness bullets that can change from stun to kill are all

⁹ Durkin, Robert T. "The Operational Use of Non-Lethal Weapons." Unpublished Research Paper, U.S. Naval War College, Newport, RI: 2000. 3

¹⁰ Lorenz, F.M. "Non-Lethal Force: The Slippery Slope to War?" Parameters, (Autumn 1996): 54

¹¹ Ibid., 55

¹² Komarow, Steven. "Pentagon deploys array of non-lethal weapons." USA TODAY, 24 July 2005
<http://www.usatoday.com/news/world/iraq/2005-07-24-nonlethal-weapons_x.htm> [19 February 2007]

being developed.¹³ Due to the war in Iraq there is more pressure on civilian development firms to have working models of NLWs in the field sooner rather than later.

For the military, designing and choosing a system as a NLW is based on three fundamental questions:

- “1. Does the weapon cause suffering that is needless, superfluous, or disproportionate to the military advantage reasonably expected from the use of the weapon?
2. Can the weapon be controlled so as to be directed against a lawful target and be discriminate in its effects? And
3. Are there any extant rules of law that prohibit its use in the law of armed conflict?”¹⁴

The Global War on Terror will continue and the quest for lower civilian casualties will persist, therefore the operational planner must ensure the ROE provided to frontline forces allow NLWs to be used to meet the criteria above. As peacekeeping and other non-classical missions draw in U.S. forces the need will continue to grow for the deployment of NLWs. While older officers still envision the fight to the death, today’s leaders are learning that NLWs are a desired tool and desperately needed.¹⁵ The most recent Quadrennial Defense Review recommended doubling the NLWs research budget.¹⁶ NLWs minimize post conflict reconstruction costs by minimizing permanent damage, provide political clout for

¹³ Grossman, Lev. “Beyond the Rubber Bullet.” Time Magazine, 21 July 2002

<<http://www.time.com/time/nation/article/0,8599,322588,00.html>> [19 February 2007]

¹⁴ Alexander, John B. Future War, Non-Lethal Weapons in Twenty-First-Century Warfare. New York: St. Martins Press. 1999. 193

¹⁵ Davison, Edwin A. “A Case for More Effective Non-Lethals.” Marine Corp Gazette, (June 2000): 27

¹⁶ Silverstein, Johnathan. “Non-Lethal Weapon Makes Targets Feel Like They’re on Fire.” ABC NEWS 8 December 2006 <<http://abcnews.go.com/Technology/story?id=2708856&page=1>> [19 February 2007]

minimizing collateral damage, and can win public favor all of which are desirable by the Commander.¹⁷

Rules of Engagement and Challenges for the Commander

While NLWs provide the Commander with a range of options to expand the spectrum of force from passive to lethal their usefulness hinges on how and when they are employed. Commanders are eager for the capability to break up crowds and prevent low level crime without bloodshed but they must appreciate the challenge posed to the soldiers on the front line who will use these weapons. Using force near civilian concentrations runs the risk of collateral damage. The ratio of civilian to combatants killed in conflict has actually increased since the inception of the Geneva Convention.¹⁸ In the ever shifting landscape of combat the enemy may have no regard for the suffering of civilians, but every level of the U.S. chain of command must be acutely aware of the impact of its actions on civilians.

The Geographic Commander must rely on his staff to provide recommended ROE that give soldiers and Marines the ability to effectively use non-lethal weapons when needed. Planners must take a hard look at possible scenarios to provide effective ROE for the NLWs deployed with combat troops. ROE must be reevaluated as conditions change on the battlefield and updated as needed to meet current situations. Consideration must be given to the negative consequences that using NLWs may bring about in a conflict. The perception that a NLW is being used for torture or intimidation can quickly turn public opinion. Every service member must be trained and fully versed on the ROE for when they can employ the NLW that they possess.

¹⁷ Mandel, Robert. Security, Strategy, and the Quest for Bloodless War. Boulder, CO: Lynne Rienner Publishers, 2004. 103

¹⁸ Ibid., 14

With each passing conflict the growing coverage by media outlets provides worldwide reporting of each battle zone. Anyone with a camera phone or web cam can capture and post footage on the worldwide web. Known as the CNN effect,¹⁹ the concern over how an engagement will be perceived by the American public or spun by a particular network will always be on the Commander's mind. As John Alexander points out, "There is no rewriting of history by the winner. In real time or near real time, people around the world know what has happened."²⁰ Demonstrating how troops use NLWs and their employment criteria to the Media may work as an information operation in the Commander's favor to show the effort of troops to minimize civilian casualties and injuries.²¹ Having the press or a civilian discussing the impacts of a NLW may be better received by the public rather than a military display perceived as military propaganda. A staff that understands the public perception of a NLW can better predict the response when one is used.

The planner must also realize that dependent upon the type of NLW to be carried in the field, regardless of the ROE there may be condemnation of the weapon's employment because of its perception by human rights groups. Certain riot control agents could be mistaken for toxic gas which could be wrongly reported as a gas attack and lead to outrage or reprisal. Some electrical charge weapons may be considered torture by a given international agency leading to protests when they are used and seen on TV. Perception by non-government agencies could also impact the use of NLWs, the International Committee of the Red Cross and Human Rights Watch see the use of certain NLWs against civilians as

¹⁹ Ibid., 18

²⁰ Alexander, 163.

²¹ Mandel, 19.

violations of Geneva Protocols.²² The Commander should be made aware of this aspect of the use of NLWs in his theater and potential fallout from their employment. Well thought out ROE can be used to mitigate any confusion over how the NLWs are used. The services of legal officers cannot be overstressed to ensure all legal requirements are met for NLW ROE. Each uniformed services Judge Advocate General (JAG) reviews NLW systems while they are in the developmental phase to ensure they meet international laws and treaties.²³ This does not alleviate the need to have the Staff JAG integrally involved in reviewing the legal ramifications of the ROE issued for NLWs. The ROE cell working for the Joint Planning Group should be given as much lead time as possible to review proposed ROE and potential impacts. Additionally, how NLWs will be viewed by allies and coalition partners must also be considered especially when troops from other nations are operating in close proximity to U.S. forces.

Well written and clearly understood ROE will enable the soldiers to effectively use the NLWs at their disposal. Any confusion or ambiguity could lead to hesitation to use NLWs. This would result in the forces being left where they started, with a choice between only passiveness and lethal force. Additionally the ROE must be fluid to allow a range of options. In Somalia the ROE were received just prior to the landings and had restrictions on certain non-lethal devices.²⁴ The ROE cannot be focused on situations where only NLWs will be used and situations where only deadly force may be used. The ROE must cover the entire spectrum of events that could cause a soldier to use no force, non-lethal force or deadly

²² Ibid., 113

²³ Nutley, Erik L. "Non-Lethal Weapons: Setting Our Phasers on Stun? Potential Strategic Blessings and Curses of Non-Lethal Weapons on the Battlefield." Unpublished Research Paper, U.S. Air War College, Air University Maxwell Air Force Base, Alabama: 2003. 38

²⁴ Lorenz, 53.

force. As the saying goes, “the enemy has a vote”, and it is the enemy’s response that will dictate how a young private or corporal may have to respond. Too much emphasis on utilizing NLWs may weigh in favor of the enemy. The enemy may perceive the forces as unwilling or unable to act decisively or lacking resolve.²⁵ Additionally the enemy may retaliate at a later time because a NLW was used, whether the enemy will retaliate with non-lethal force or lethal force will be dependent upon the means available to him.²⁶

The use of Graduated Response Matrices (GRMs), matrices that show a graphical depiction of escalation, in planning allows ROE to be developed that can be analyzed for various situations.²⁷ War games and training can then be used to evaluate the effectiveness of the GRM. Once assessed the lessons learned are applied to update any deficient or overlooked ROE. A good example of measured response is the VEWPRICK acronym. VEWPRICK stands for Verbal warning, Exhibit weapon, Warning shot, Pepper spray, Riot stick, Injuring fire, and finally Killing fire.²⁸ An acronym that soldiers can use to step through the process of how the use of force can escalate is just one way to view the possible range of force that may be required. Here it is paramount to understand that an enemy may quickly return non-lethal fires with lethal fires. Escalation in the battlefield may be unpredictable. A soldier may have to shift from non-lethal ROE to deadly ROE in the matter of seconds. The ROE provided should make clear that the transition to lethal force is available to the soldier. ROE that focuses on NLW due to the anticipated non-hostile environment can endanger troops. Forces must always have lethal capabilities with them and

²⁵ Nutley, 32.

²⁶ Durkin, 12.

²⁷ Center for Army Lessons Learned. “Incorporating Non-Lethal Technology Tactics, Techniques and Procedures.” Center for Army Lessons Learned. Newsletter No. 00-7, April 2000

²⁸ Ibid.

the lethal weapons apparent to the enemy so it is understood that they are prepared for the full spectrum of conflict.²⁹ If an adversary switches from a menacing gathering to open gunfire the soldier must have the capability to quickly return his own lethal fire. ROE must constantly be reevaluated to ensure they meet the current threat, as the mission tasking changes or is updated the ROE must reflect the current mission.³⁰

To ensure that ROE are understood and achievable every opportunity should be taken to train troops in advance on the ROE applicable to their NLW. Any unit that is considered for deploying with NLWs must train from day one not only how to use the weapon but when it is to be used. Geographic Commanders receive troops already trained for deployment. However, once in the new area of responsibility (AOR) the Commander must ensure the troops continue to train on the ROE applicable to the AOR. Incorporating ROE training is imperative so forces are prepared when the time comes. Staff planners should find ways to apply NLW ROE to war games and simulations to make sure they are fully vetted before entering potentially hostile areas.³¹ Superiors should continue to monitor how NLWs are being use in the field to ensure training has been effective and legal requirements are being met.³² Another critical point to ensure that the soldiers understand that just because they have NLWs does not mean they have to use them first. While there is the potential for post conflict legal disputes over the use of NLWs that is not the concern of the soldier in the field, the ROE should see them through the conflict.³³

²⁹ Alexander, 182.

³⁰ Norbut, Gerald W. "Non-Lethal Weapons: Force Enabler for the Operational Commander Conducting Peace Operations." Unpublished Research Paper, U.S. Naval War College, Newport, RI: 2001. 5

³¹ Alexander, 183.

³² Norbut, 8.

³³ Alexander, 197.

The ROE should also address proportionality of response. A major concern for legal reasons is the potential for non-discriminate use of NLWs. Just as with lethal weapons there is the concern of an innocent bystander being subjected to the effects of a NLW. While the effects of the NLW may not be permanent, there is the civil question as to why the bystander was targeted at all. ROE should address the potential for scope of use of NLWs.

The misapplication of a NLW must also be considered by planners. NLWs may unintentionally become lethal or maiming weapons. One scenario envisioned in Somalia was the use of sticky foam near unattended barbed wire to cover the perimeter and what would happen if a person was stuck to the sharp barbs of the wire.³⁴ Worse yet imagine the thought of a soldier using the Active Denial System (ADS) to torture someone who cannot get out of the beam. ADS shoots a microwave energy beam that when it touches a person's skin the top layer feels as if it were on fire, but when the beam is removed the sensation stops and there is no lasting effect. While soldiers are taught to prevent this during system training the ROE can reinforce the limitations of how the NLW can be used. An episode of apparent torture using a NLW played out on the evening news would likely bring back memories of Iraq's Abu Ghraib prison to many Americans. While ROE cannot stop a determined misguided soldier from committing an atrocity it may stop an unintentional atrocity. No Commander wants the misuse of a NLW system to turn the action of a few soldiers into a strategic event or international incident.

There are even situations where a NLW could be used to cause lethal effects. If a NLW is fired at someone operating a vehicle or piloting an aircraft and it causes them to

³⁴ Lorenz, 58.

crash there is the potential for fatalities.³⁵ While weapon employment is taught at the tactical level, ROE override tactics as to what is a legitimate target for a NLW. Again it is training exercises and war games that will enable planners to come to better understand how ROE should be applied for the NLWs carried in the field.

Clear ROE must also be created for completion of the conflict. Use of NLWs to guard prisoners of war or other detained suspects must be clearly crafted. The end of major combat operations may bring about more situations that require NLWs to be utilized. The ROE for NLWs must continue to be evaluated even after the lethal portion of the conflict has subsided.

The U.S. military will continue to be assigned humanitarian and peacekeeping missions. U.S. forces are capable of these missions but understanding the role that the forces may play in these areas makes defining ROE difficult. The United Nations guidelines for peacekeeping operations states, “peacekeeping is a non-coercive instrument, based on consent and cooperation of the parties. Force is not the means which it utilizes to achieve its mandate. However, peacekeepers at all times retain the right of self defense, in which case force may be used as a last resort.”³⁶ U.S. forces may not be operating under U.N. direction but the principle still applies. In most cases lethal force would be the least desired option during a peacekeeping evolution. If required to break up a riot, an angry mob or civilians attempting to board an evacuation ship/flight, how will ROE allow soldiers to use force without leveraging lethal force? In these missions the ROE must anticipate the situations that

³⁵ Mandel, 101.

³⁶ Rahimi, Reza. Arnesen, Harry. Hoibraten, Steinar. and Kippe Halvor. “Non-Lethal Weapons for Peacekeeping Operations.” Unpublished Research Paper for Norwegian Defence Research Establishment. n.d.

may occur so that NLW ROE can be used, escalating to lethal force as a last resort. Civilian casualties in a peacekeeping mission can quickly bring about strategic consequences.

As the scope of NLW technology continues to expand the ROE will have to be modified to encompass the various capabilities of the weapons. Some weapons, such as lasers, that were once considered science fiction may be appearing on the battlefield within the next decade.³⁷ Developing ROE that allow troops to effectively use these NLWs to their fullest potential will be a challenge for planners evaluating the environment that troops are deployed in.

Counter argument for NLW specific ROE

Some would argue that adding specific ROE for NLWs will only create more restrictions a soldier must remember before using a NLW or may drive the tactical commander to not want to be hampered by having to deal with NLWs. The addition of NLW specific ROE will also require more staffing to validate when each type of weapon can be used. As with any new technology there is reluctance to incorporate the new into the tried and proven capabilities. While senior leadership grew up in a simple deadly force/no force mindset, new soldiers have to deal with a wide range of situations that require them to use force other than deadly force. Due to the array of NLWs available it is hard to have ROE specific to a weapon because of the uncertainty of which weapon may be carried in a particular area. Having NLW-only troops is intangible because they would need to be protected by lethal armed troops if escalation led to the exchange of lethal fires. Given the range of capabilities of NLWs it could be possible to have ROE that are acceptable for one

³⁷ Kennedy, 26.

NLW yet completely invalid for another, thus making it harder to have one set of ROE to cover all NLWs.

The added burden of anticipating and incorporating non-lethal fires into the ROE will indeed add to the list of rules soldiers must learn and make the planning process even more robust. The commander in the field will have more NLW options available to him, but he also must understand when each of those devices can be used based on the governing ROE adding to his or her responsibility. But, the aforementioned “CNN effect” will leave a Commander wishing his troops had sufficient NLW ROE when viewers around the world see an innocent victim inadvertently killed by lethal force at the hands of troops who had NLWs at their disposal.

Conclusion

Non-lethal weapons provide the combatant commander with more leverage in potential hostile situations, no longer is the choice either passive action or deadly action. However to properly utilize these battlefield tools the ground soldier must have effective ROE. The operational planner must have the foresight to envision the range of situations that a young Marine or soldier will face and make the ROE to encompass those situations. Assuming that NLWs will alleviate unnecessary combat casualties, without instructing forces when they are authorized to be used, invites disaster. Leaving ambiguity as to when a NLW can be used may lead to a field commander not using them, or incorrectly using them causing a tactical situation to quickly turn into an operational or even strategic level event.

Public perception and media coverage will continue to play a key role in future conflicts. Outside observers now have technology at their disposal to witness what is happening on a battlefield in a matter of minutes or seconds. How U.S. troops respond to a

situation will come down to their training. They must understand the spectrum of options available to them and have ROE that direct the transition for levels of force. The security and safe-being of the U.S. forces is paramount, but ROE can display to U.S. citizens and the global community the Combatant Commander's desire to minimize civilian casualties and collateral damage.

NLWs are not end all be all weapons. They have capabilities and limitations just like any other weapon. When developing ROE, NLWs must be treated like any lethal weapon. Anticipating and understanding how adversaries, the media, and international observers perceive their use must be factored into the process of creating ROE. Use of NLWs may lead to an escalation on the battlefield or retaliation by enemy forces. ROE cannot be developed in a vacuum. Staff planners must continually evaluate the validity and effectiveness of ROE being used by troops in the field. JAG officers will help the planners to understand the legal ramifications of the NLWs in use.

The U.S. military will continue to be engaged in peace keeping, humanitarian aid, evacuations, and low intensity conflict operations. These situations will put U.S. forces in proximity to potential enemies interspersed with the civilian population. The advent of new technologies will bring more and varied NLWs into the battle space. Determining the correct ROE for their use will fall on the theater commanders. Understanding how the people and culture in which the NLWs will be used is critical to the operational planners. The ability to safely and effectively control a crowd or mob of civilians without lethal fires is vital. It is unlikely the U.S. public aversion for bloodshed will diminish especially during events that are perceived as non-hostile or low risk. The ROE provided must give the peacekeepers the

tools they need to minimize risking harm to civilians. There is no second chance once force has been utilized.

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