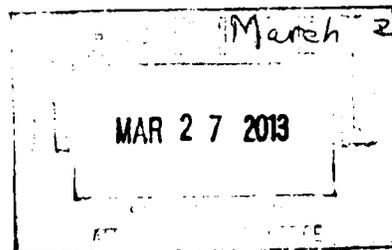


Office of the Attorney General
Pavillion Bldg.
Montpelier, VT

73 Richardson Rd.
Burr, VT 05641



Dear People,

This letter provides my input on the issue of police use of Taser shock weapons. I attended the forum at the Pavillion auditorium, and I appreciate that it was held and that input is sought on Tasers. Although I am uneasy at any use of Tasers, it seems that particular cow is already out of the barn and unlikely to go back in. I want to suggest additional training for all officers who carry them, specifically in regards to persons with mental health and related disabilities. The death of McAdam Mason, who phoned DHMC seeking help in a mental health crisis, tells me that the VSP, and some other officers in VT, have unrealistic, mostly negative ideas about people experiencing a mental health crisis, as well as, possibly, little

(2)

understanding of why persons who have recently had a seizure, like Mr. Mason, are not likely to understand commands of police.

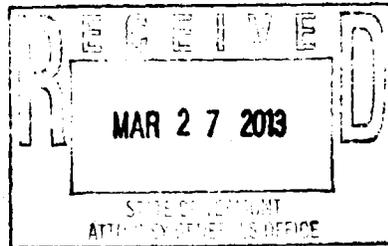
Sadly, exonerating the officer who killed Mr. Mason was done on grounds that he was in fear of imminent severe bodily harm from Mr. Mason. This raises prejudice against people with psychiatric disabilities to a new height; if such people are -unrealistically- seen as some kind of super-strong, mad-as type of individuals who cannot be handled by 3 or 4 state police, then shooting them is excused.

Include in trainings lots of folks with mental health issues, not simply one or two "token mental patients" who can be disregarded as atypical. Have all police officers attend the day-long annual meeting of the VT Association for Mental Health + Addiction Recovery. Attend the "Recovery Day"

(3)

events held annually by many of
community mental health centers, a
called the "Designated Agencies." See many
people with mental health issues, past or
present, when they are NOT in the
middle of a crisis. In Montpelier, a
"Community Dinner" is held every Friday
at Another Way, a community center for
psychiatric survivors at 125 Barre St.
All are welcome at the Friday dinner,
at 5pm each week.

It is my belief that when each police
officer in VT has ~~s~~ enough opportunities
to get to know people with psychiatric
histories or current psychiatric disabilities
as people, there will be fewer inappropri-
ate Tasings of already traumatized people.
Sincerely, Xenia S. Williams
(Xenia Williams)



Dear People at the
Office of VT Attorney General,

3/26/2013

Barre Town, VT

As I was about to mail the enclosed letter, I realized I had not identified myself by background + training. Now retired, I am a Licensed Clinical Mental Health Counselor who worked for Washington County Mental Health Services for 10 years, 6 of them at the Home Intervention Crisis Residence. In 1998 I received my MS in Community Mental Health from Trinity College of VT, and my LCMHC from the state of VT several years later. Prior to employment with WCMHS, I was myself a mental health client for many years. People do recover. Sincerely, Kenia S. Williams LCMHC

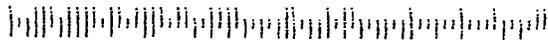
From:
Xenia Williams
73 Richardson Rd
Barre, VT 05641-9096

BURLINGTON VT 054

26 MAR 2013 PM 1 T

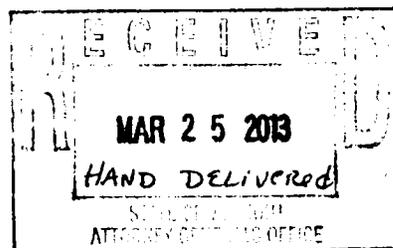


To: Office of the Attorney General
Pavillion Building, 3rd floor
Montpelier,
VT 05609



3/25/2013

TASER FORUM PANEL
C/O OFFICE OF THE ATTORNEY GENERAL
109 STATE ST.
MONTPELIER, VT 05609



I AM AGAINST THE USE OF TASERS
AND AGREE WITH JEFF DWORIKIN'S SUGGESTION
THAT THEY BE PUT IN STORAGE AND NOT USED.
I SIGNED ON TO HAVING A MORATORIUM
STATEWIDE ON THE USE OF TASERS.

ALSO I ASKED SARGENT HUGH O'DONNELL (THE
TASER TRAINER FOR STATE POLICE) IF HE KNEW
ABOUT THE ELECTRICAL NODES/CELLS OF THE HEART
AND HE DID NOT. I THINK IT WOULD BE A VERY
GOOD IDEA TO HAVE A CARDIOLOGIST AND/OR AN
EMERGENCY MEDICAL TECHNICIAN BE PART OF THE
TRAINING.

ALSO PEOPLE WITH MENTAL, COGNITIVE DISORDERS
COULD BE PERMANENTLY TRAUMATIZED BY BEING
TASED, AS THE INFORMATION GIVEN BY A.J. RUBEN SHOWED.

PLEASE REVIEW CAREFULLY JEFF DWORIKIN'S REPORT
I ATTENDED SEVERAL OF THE MEETINGS AND THE FACTS
ASSEMBLED BY THE TASER COMMITTEE WILL TELL YOU
SPECIFICALLY HOW DANGEROUS THESE WEAPONS ARE.

IN MONTPELIER THERE ARE MANY PEOPLE WHO
COULD PUT TOGETHER A CITIZEN'S MANUAL OF
WHAT TO DO AS AN ALTERNATIVE TO HANDS-ON
VIOLENCE.

ONE PERSON, JOSEPH GAINZA WHO WAS HEAD OF
THE AMERICAN FRIENDS' SERVICE COMMITTEE OFFICE IN
MONTPELIER WOULD BE ABLE TO HELP.

PLEASE PROCEED CAUTIOUSLY - BECAUSE MANY PEOPLE'S
LIVES ARE IN THE BALANCE.

ALL OF US HAVE TO PARTICIPATE IN GETTING ALONG
BETTER SO THAT IT IS NOT NECESSARY TO
USE WEAPONS THAT ARE LETHAL.

THANK YOU FOR YOUR CONSIDERATION
AND TIME SPENT ON THIS MATTER.

SINCERELY

Donna Youngblood

DONNA YOUNGBLOOD
PO BOX 423
MONTPELIER, VT 05601

TELE: 802 272-2315

Evan Meenan

From: Mary-Kay Swanson
Sent: Tuesday, March 26, 2013 8:01 AM
To: Cindy Maguire; Evan Meenan
Cc: Mary-Kay Swanson
Subject: FW: VT AG TASER™ FORUM SUBMISSION
Attachments: LTR VTAG IRT ESWs Mar25.pdf; ATT541849.htm; aegisaxeoswhitepaper.pdf; ATT541850.htm; aegisaxeosbrochure.pdf; ATT541851.htm; aegisaxeosadvisoryboardresolution.pdf; ATT541852.htm

Came in last night.
MK

From: Stethem [<mailto:stethem@aegisarmor.com>]
Sent: Monday, March 25, 2013 12:02 PM
To: Mary-Kay Swanson
Subject: VT AG TASER™ FORUM SUBMISSION

Dear Attorney General William H. Sorrell,

Please find attached a letter with the comments and information I would like to present for your forum regarding electroshock weapons (ESWs).

I believe that you will conclude from this information that the facts, logic, reason and responsible use will all support the development of a proactive measurement program of ESWs prior to use rather than simply after any adverse, irreversible and unintended consequences, especially including deaths.

In the event that the decision is made to continue the use of ESWs by throughout Vermont and a statewide policy developed for this potentially deadly technology, I would strongly urge measurement be included as part of this policy.

The professionals we have assembled on this advisory board are top professionals in their field. These law enforcement professionals include a past President of the Maryland Chiefs of Police Association, who was also a former President of the National Organization of Black Law Enforcement Executives (NOBLE), a former Commissioner for the Council for the Accreditation of Law Enforcement Agencies as well as other top law enforcement and industry association executives.

Again, I am proud that you and Vermont have taken a leadership role in investigating the risks and policy issues surrounding ESWs and look forward to seeing your report on the same.

If you have any questions or comments on this information or would like to contact me, please do so at your convenience at the numbers listed below.

Very best regards, k

I Kenneth J. Stethem | CEO | [Aegis Industries, Inc.](#) | O: 240.888.1570 | F: 240.715.9637 |

This e-mail may contain confidential information, may be protected by applicable privileges, and may constitute non-public information. It is intended to be conveyed only to the designated recipient(s) of the message. If you are not an intended recipient of this

message, please notify the sender. Unauthorized use, dissemination, distribution or reproduction of this message is strictly prohibited and may be unlawful.

Please consider the environment before printing this e-mail.



Kenneth J. Stethem
CEO / Chairman

March 25, 2013

The Office of Attorney General
The State of Vermont
109 State St #1
Montpelier, VT 05609

Dear Attorney General William H. Sorrell,

I would like to provide you with the following comments and information regarding the VERMONT ATTORNEY GENERAL's TASER™ FORUM.

Rather than use a specific manufacturer or product name, however, I would prefer to use the industry term for this type of technology, electroshock weapons (ESWs). This term captures and characterizes exactly what these weapons are designed to do, introduce repeated electrical impulses into the human body. The use of this term also eliminates any confusion that might occur with the future introduction of other companies or products into this genre of weapons that, according to U.S. government reports, can result in "adverse, irreversible and unintended consequences, including death."¹

As you know, ESWs are used by law enforcement agencies throughout Vermont and the U.S. despite the lack of any government regulation, oversight, safety standards or performance requirements for these weapons. The lack of any recognized safety standards thirty years after the introduction of this technology and reported "extensive" research, has only fueled the debate surrounding the unintended consequences, including deaths, and the violations of the civil and human rights associated with these weapons.²

The U.S. government is not alone in acknowledging that these weapons are life threatening, either. In fact, the manufacturers' own researchers, disclaimers and disclosures all acknowledge that the use of ESWs can cause "cardiac capture" and that the electrical output measurements can vary due to "factors beyond" their control.^{3,4}

¹ July 29, 1999

NIJ, HEAP <https://www.ncjrs.gov/pdffiles1/nij/grants/188262.pdf>

² December 2009

MD AG Report <http://www.oag.state.md.us/Reports/ECWRReport.pdf>

³ May 31, 2011

TASER™ Voluntary Exposure Release Form

<https://www.taser.com/images/resources-andlegal/releaseforms/downloads/volunteer-exposure-release.pdf>



In 2008, the National Institute of Standards and Testing, Law Enforcement Standards Office (NIST, OLES) realized that measurement of ESWs could lead to the proper and reliable operation while minimizing the adverse, irreversible and unintended consequences.⁵ As a result, the NIST, OLES initiated a standards based approach research program and worked with industry stakeholders, as well as the International Electrotechnical Commission (IEC), to develop a standardized measurement method for all ESWs.⁶ This effort has resulted in the development of the IEC PT 62792: Electroshock Weapons Measurement Method, a measurement method that accurately characterizes the electrical energy discharged by all ESWs.⁷

The need for law enforcement agencies to develop and maintain a measurement program for ESWs is actually best expressed by comments made by ESW manufacturing executives, themselves. During the NIST OLES measurement research program, one executive admitted that, "Agencies are concerned that over time, any electronic device can break down."⁸ Another executive actually admitted, 10 years after these high power ESWs were introduced to law enforcement, that, "We really didn't come up with a good way to measure the high voltage."⁹ A member of a manufacturer's Scientific and Medical Advisory Board disclosed that, "I do not believe we presently have enough published scientific data to begin working on a performance/safety standard [for ESWs]."¹⁰ Another executive stated that, "The logistics involved [with measurement of ESWs] can be significant."¹¹ Review of the manufacturers own electrical characteristics disclose that the measurement output of these weapons can, "... vary due to factors beyond [their] control."¹² In addition, manufacturers are not even required to disclose electrical specifications and there is nothing to prevent manufacturers from arbitrarily changing electrical specifications without notice.

⁴ Feb 1, 2009 http://www.ecdlaw.info/outlines/EC_02-01-09_X26_Elec_Char.pdf
⁵ Nov 12, 2008 http://www.nist.gov/oles/electroshock_111208.cfm
⁶ Sep 29, 2009 <http://regulations.justia.com/regulations/fedreg/2009/09/29/E9-23461.html>
⁷ Mar 25, 2013 IEC PT 62792 ESW Measurement Method
http://www.iec.ch/dyn/www/?p=103:14:0::: FSP_ORG_ID,FSP_LANG_ID:8974,25
⁸ Oct 21, 2009 NIST Minutes of Meeting, Page 83, Line 10-11
⁹ Oct 21, 2009 NIST Minutes of Meeting, Page 74, Line 6-7
¹⁰ Feb 1, 2013 e-mail correspondence to NIST ESW measurement panel
¹¹ Oct 22, 2011 118th IACP, Chicago, IL News media Interview,
¹² Feb 1, 2009 http://www.ecdlaw.info/outlines/EC_02-01-09_X26_Elec_Char.pdf



The best practices of law enforcement agencies in Vermont and throughout the nation acknowledge that best practices for electronic technologies include regular measurement to ensure safe, proper and reliable performance.¹³ Since law enforcement agencies nationwide have all recognized the requirement to ensure the accuracy and performance of radar guns, breathalyzers, window tinting testers and Automated External Defibrillators (AEDs), all technologies that do not cause or contribute to death, it is only reasonable that these same agencies should also recognize the need to measure weapons that can, admittedly, cause cardiac capture.¹⁴

The standardized measurement of ESWs is not only fundamental to ensuring the proper operation and reliable performance of these weapons prior to use¹⁵ but also for medical examiners (M.E.s) and coroners investigating ESWs deployed proximal to deaths.¹⁶ This is an important point because while many advocates claim that these weapons have not been identified as causal or contributory factors to many of the hundreds of deaths related to ESW use and that investigations into deaths proximal to ESW deployments have cleared both law enforcement and this technology, the fact is, in the vast majority of these cases, the electrical energy discharged was not even measured. This is not only a violation of civil and human rights but the failure to measure the electrical energy discharged from these weapons also compromises of the investigative process itself by preventing the collection of valuable information.

The families of the deceased deserve to know that electrical energy discharged from weapons associated with the deaths of their loved ones was actually and accurately measured, especially given the lack of any recognized safety standards or clear definitions for appropriate use. It is the duty of M.E.s and coroners to thoroughly investigate, collect and analyze all evidence associated with these deaths. After all, the dead cannot defend themselves.

Given these facts, I believe that the requirement to measure the electrical energy discharged by ESWs prior to use and proximal to deaths is self-evident¹⁷ and could also be instrumental in protecting officers by identifying unsafe, defective or damaged weapons prior to going on duty or upon return.

¹³ Mar 25, 2013 Council for Accreditation of Law Enforcement Agencies (CALEA)

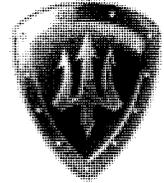
¹⁴ May 31, 2011 TASER™ Voluntary Exposure Release Form

<https://www.taser.com/images/resources-andlegal/releaseforms/downloads/volunteer-exposure-release.pdf>

¹⁵ Nov 12, 2008 http://www.nist.gov/oles/electroshock_111208.cfm

¹⁶ May 24, 2011 NIJ, Study EMD Deaths <https://www.ncjrs.gov/pdffiles1/nij/233432.pdf>

¹⁷ December 2009 MD AG Report <http://www.oag.state.md.us/Reports/ECWReport.pdf>



The recent development of an patented ESW waveform analyzer that provides law enforcement agencies and M.E.s with the ability to safely, accurately, reliably, locally and cost-effectively measure ESWs prior to use and proximal to deaths has, literally, been impossible until now.¹⁸ I would humbly but firmly urge you, if you continue the use of ESWs in Vermont and develop our nation's first statewide policy regarding ESWs, to include an independent measurement program for ESWs based upon the IEC PT 62792 standard and this new, patented measurement technology.

I would also recommend that caution be exercised in implementing an ESW measurement program to prevent the adoption of obscure, ambiguous or complicated manufacturer recommended test specifications that are neither scientific nor accurate in representing the total electrical energy being discharged by ESWs. Failure to include an effective measurement program in any statewide ESW policy will continue to compromise officer and public safety and continue to violate civil and human rights. Certainly the importance of measurement is worth a discussion with the NIST OLES¹⁹ or the IEC.²⁰

And while much of the focus of the risks associated with these weapons is focused on the public, it must also be remembered that an effective measurement program is just as important for officers utilizing this technology.

The failure of government officials and law enforcement executives to recognize the need to measure ESW technology is nothing less than deliberate indifference to the very civil and human rights these officials have sworn to protect. The strength and integrity of Vermont's, as well as our nation's, justice system directly depend upon the ability to protect the safety of its' citizens.

Thank you in advance for your consideration in this matter and I hope to review with admiration your decision to include the regular and standardized measurement of ESW technologies in any statewide policy you may develop.

Kenneth J. Stethem
Chairman / CEO

¹⁸ March 25, 2013 <http://www.aegisaxeos.com>

¹⁹ March 25, 2013 http://www.nist.gov/mml/mmsd/security_technologies/biographies_nickpaulter.cfm

²⁰ March 25, 2013 <http://www.iec.ch/about/contactus/?ref=toplinks>



cc: VDPS Vermont Department of Public Safety
ACLU VT American Civil Liberties Union, Vermont
DRV Disability Rights Vermont
U.N. United Nations
AI Amnesty International
CBC Congressional Black Caucus
SCLC Southern Christian Leadership Conference
ADA Americans with Disabilities Act
NAACP National Association for the Advancement of Colored People
DGA Democratic Governors Association
RGA Republican Governors Association
DAGA Democratic Attorneys General Association
RAGA Republican Attorneys Generals Association
AGMD Office of Attorney General of Maryland
MCPA Maryland Chiefs of Police Association
ACLU American Civil Liberties Union
NOBLE National Organization of Black Law Enforcement Executives
IACP International Association of Chiefs of Police
NSA National Sheriffs' Association
NTOA National Tactical Officers Association
FBP Federal Bureau of Prisons
SIA Security Industry Association
CALEA Commission on Accreditation for Law Enforcement Agencies
PERF Police Executive Research Forum
OJP-POA Officers for Justice-Peace Officers Association
NAIC National Association of Insurance Commissioners
NAME National Association of Medical Examiners
IAC&ME International Association of Coroners & Medical Examiners
NATL National Association of Trial Lawyers
PRIMA Public Risk Managers Association
ICMA International City/County Management Association
NLC National League of Cities
FPSH Florida Partnership for Safety and Health
AMA American Medical Association

RESOLUTION BY THE AEGIS AXEUS ADVISORY BOARD IN SUPPORT OF THE STANDARDIZED MEASUREMENT OF ELECTROSHOCK WEAPONS

Whereas, law enforcement personnel throughout the world utilize electroshock weapons (ESWs) as less lethal force options; and

Whereas, the protection of life is the paramount duty of every law enforcement officer; and

Whereas, independent measurement has shown that ESWs can discharge electrical energy outside a manufacturer specification; and

Whereas, manufacturers recognize that the measured output of ESWs can vary due to factors beyond their control; and

Whereas, peer-reviewed medical research and manufacturers recognize that the known and possible side effects of ESWs include cardiac capture and other deleterious effects that can lead to death; and

Whereas, researchers at the U.S. Department of Defense (DOD) have determined that the physiological effects of ESWs are transient and will not leave pathological markers such as gunshot wounds; and

Whereas, researchers at the U.S. National Institute of Justice Office of Science & Technology (NIJ OS&T) have determined that ESWs involved in use proximal to death should be measured to determine the electrical energy these weapons discharge; and

Whereas, manufacturers, the NIJ OS&T, the National Institute of Standards and Testing Law Enforcement Standards Office (NIST OLES), the IEC and other stakeholders, in and out of the law enforcement industry, all acknowledge the importance and requirement for a standardized measurement method that will permit the regular verification and characterization of the total electrical energy discharged by an ESW waveform prior to injury or death; and

Whereas, standardized measurement ensures the proper and reliable operation of ESWs; and

Whereas, model policies, guidelines and equipment concerning the measurement of ESWs have been developed; and

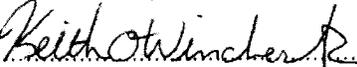
Now, therefore be it resolved, that the Advisory Board of Aegis Industries, LLC supports the regular measurement of ESWs according to methods developed by independent certification organizations specializing in electrical matters as an effective means to verify and characterize the electrical energy discharged by these weapons; and certified measurement equipment that, through proper training and management, can increase the trust and confidence of law enforcement officers, agencies and the public in current and future ESW technologies while decreasing the cost(s) and liabilities associated with the same.

SIGNATURES

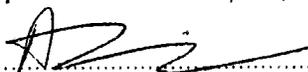
① 
.....
Doug DeLeaver Retired Chief of Police/Past National President NOBLE

② 
.....
DR. Jessie Lee, PhD, MPA

③ 
.....
Cleveland Barnes, MS/Retired Chief of Police, UMBP

④ 
.....
Keith Owne Winchester North America Sales & Business Development

⑤ 
.....
Temple Bocclair Retired Captain, Metro Dade PD

⑥ 
.....
Anjette Criner Sr. Business Development Manager

⑦ 
.....
Dave Treadway President & CEO

⑧

⑨

⑩

⑪

IEC PT 62792

ESW MEASUREMENT METHOD* IS YOUR AGENCY PREPARED?

AEGISAXEOS.COM

DEFEND. PROTECT. PRESERVE 

* IEC PT 62792 is an international standard that specifies a method for measuring the electrical outputs, current and voltage, from electroshock weapons (ESWs) that deliver an electrical stimulus to humans. *This international standard is applicable to any and all ESWs.*



ESW ANALYZER
PAT US 8.324.902 B2

THE REVOLUTION HAS BEGUN

ESW CHARACTERIZATION AND VERIFICATION

AEGIS



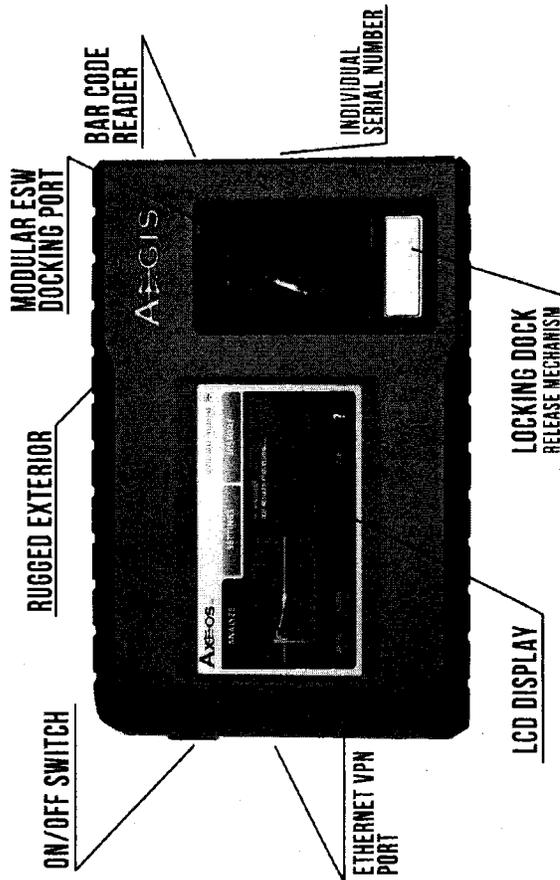
AEGISAXEOS.COM

DEFEND. PROTECT. PRESERVE 

The AEGIS MARK 23 AXEOS is a precision bench top test instrument that safely, accurately and reliably measures, records, stores and transfers the electrical discharges of a variety of electroshock weapons (ESWs).

The AXEOS measures the output of ESWs against multiple resistance loads relative to actual field use. The measurement of ESWs against multiple resistance loads more accurately allows operators and agencies to characterize and verify the electrical discharges of ESWs.

The AXEOS offers a simple, intuitive, reliable and repeatable solution for the need to quickly, effectively and safely characterize and verify ESW output. This information can then be transferred and stored or printed and documented for evidentiary use.



BENEFITS

- Best Practice
- Public Safety
- Officer Safety
- Agency Liability
- Proactive Approach
- Legal Coverage
- Liability Coverage
- Measurement
- Captures
- Characterizes
- Verifies
- Records
- Analyzes
- Identifies anomalies

KEY FEATURES

- Intuitive user interface and backlight
- Easy to read LCD touch screen operation
- Safe operation
- Software design allow for future upgrades
- Secure operation
- Multiple load resistances
- Multiple types of waveforms
- Accurate to $\pm 1\%$
- Modular design allows for upgrades to test future ESWs
- Secure wireless and VPN options
- Designed, built and tested to incomparable quality standards
- Two year extended warranty

RECORDS / STORES / TRANSFERS ALL:

- Current data
- Voltage data
- Frequency data
- Individual pulse data

ESW OUTPUT CAN BE MEASURED
THE LIVES SAVED CAN NOT..





AEGIS

WHITE PAPER:

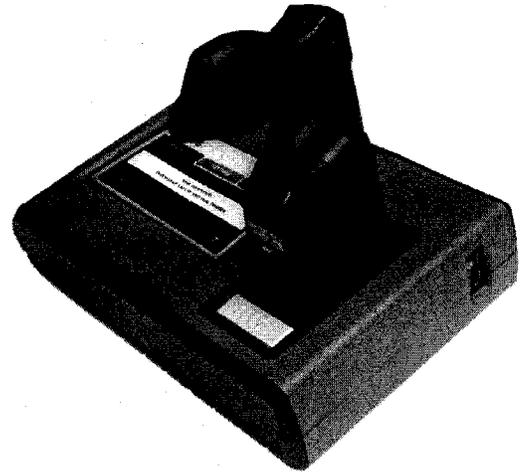
**ELECTROSHOCK WEAPONS (ESWs) AND PUBLIC
SAFETY: THE NEED FOR STANDARDIZED AND
REGULAR MEASUREMENT**

DEFEND. PROTECT. PRESERVE.



AEGIS INDUSTRIES

PROBLEM: Electroshock weapons (ESWs) are deployed by military/law enforcement (M/LE) agencies throughout the world yet there are no standards for safety, performance or reliability for these “less lethal” weapons. The lack of government oversight, regulations, or industry standards for ESWs is disturbing considering that government and manufacturers have acknowledged these weapons can cause cardiac rhythm capture and other deleterious effects that can lead to unintended consequences, including death. Manufacturers and independent laboratories have also divulged in published reports and disclosures that the electrical energy discharged by ESWs can be outside manufacturer specifications. As a result, public and officer safety can be compromised, and there is no way to ensure that ESWs are operating safely, properly, or reliably, either prior to use or after an injury or death has occurred. In addition, there is no currently existing methodology to hold ESW manufacturers accountable for the electrical energy discharged during the entire life cycle of these weapons.



AEGIS AXEOS™

SOLUTION: Stakeholders inside and outside of the industry, the National Institute of Standards & Technology, Law Enforcement Standards Office (NIST OLES) and the International Electrotechnical Commission (IEC) have all identified the need for, and participated in, the development and recommendation of a standardized measurement method for ESWs. In response to this emerging need, an ESW waveform analyzer has been developed for M/LE agencies that will quickly and accurately determine that ESWs are operating properly, reliably, and within a manufacturer’s specifications prior to use. The AEGIS AXEOS ESW Waveform Analyzer allows agencies to discharge, display, record, store, and even transfer complete ESW discharge data for verification, characterization, evidentiary, and technology trend purposes.

BACKGROUND

Electroshock weapons (ESWs) are “less-lethal” weapons used to introduce electrical insult into a human body for the purpose of creating pain and incapacitation in non-deadly scenarios. In 1999, the National Institute of Justice, Office of Science & Technology (NIJ, OS&T) published The Sticky Shocker Report, a comprehensive report that determined adverse, irreversible, and unintended consequences, including death, could occur as a result of ESWs introducing electrical insult into the body.

This report identified that, overall, there was not enough relevant heart current data available to

predict cardiac effects of ESWs, and that it was unclear how electrical currents actually affect the human body. In addition, this report determined that pH levels of the blood change drastically when electrical current passes through the body, which could easily affect the respiratory system of the heart and result in death. This report also identified the need to develop a standardized means to measure and predict the electrical energy discharged by ESWs.

Another government report in 2003 recognized that the physiological effects of ESWs are temporal and would not leave pathological markers such as gunshot wounds. As a result, this report questioned

AEGIS INDUSTRIES

“So we really didn’t come up with a good way to measure the peak of the voltage.” – Max Nerheim, VP Research & Development, Oct. 2009

how coroners and medical examiners could exclude identifying ESW usage as a causal or contributory factor proximal to deaths.

No independent risk characterizations were conducted to validate the claims made by manufacturers that minimized the risks associated with high power ESW technology. Meanwhile, increased deaths and additional independent scientific research actually demonstrated that ESWs were not as safe as originally claimed. Manufacturers eventually changed the recommended target areas and acknowledged that known and possible side effects of ESWs include cardiac capture, which could lead to death. In 2007, a high profile death related to ESW use resulted in the Braidwood Inquiry. One of the recommendations from this Inquiry was for ESW policies to include the measurement of electrical energy discharged by these weapons to ensure their safe and proper operation, performance, and reliability.

When ESWs started to be measured in 2008, and a significant number were found to be operating outside the manufacturer’s own specifications. Consequently, the manufacturer changed the recommended measurement protocol for ESWs several times during this period.

As a result, questions soon surfaced within the scientific, engineering, law enforcement, legal, and insurance industries regarding the independence, accuracy, and legitimacy of the measurement methods used by manufacturers, medical examiners, and others to measure the actual amount of electrical current being discharged by ESWs.

NIST (OLES)

In 2008, the National Institute of Standards and

Technology, Law Enforcement Standards Office (NIST, OLES) initiated a program of development for rigorous performance requirements for ESWs. This included the measurement of current and high-voltage output of these weapons, calibration of these measurement methods, and computing measurement uncertainties. During a 2009 meeting, one senior electrical engineer from one prominent ESW manufacturer actually admitted that, “We really have not come up with a good way to measure the high voltage.” This was quite disturbing, given that this same engineer had recommended numerous measurement protocols to independent entities testing ESWs before, during and after this time.

The IEC is the international authority recognized for developing standards for any product that produces, utilizes, stores or transfers electrical power. In 2012, the IEC developed the PT 62792: ESW Measurement Method. This standard was developed to become the internationally recognized and accepted method for the safe, accurate, and reliable measurement of ESWs.

The IEC PT 62792 will provide manufacturers of ESWs and all stakeholders, from researchers, laboratories, M/LE agencies, industry associations and organizations, insurance providers, city and risk managers, and many others with the guidance to independently and accurately measure ESWs for electrical energy discharged, proper operation, performance and reliability.

AEGIS AXEOS™

AEGIS has designed and patented the AXEOS™ ESW Waveform Analyzer, a bench top measurement tool that quickly, safely, accurately, and cost-effectively allows M/LE agencies to discharge, display, record, store, and transfer all information related to ESW

AEGIS INDUSTRIES

“Inconsistent reports regarding the output of ESWs and the absence of standardized assessments . . . prevent the development of rules of deployment guidelines.” – NIST OLES

current data.

The AXEOS™ increases public and officer safety by ensuring that ESWs are operating within manufacturers' specifications, and recording this data for evidentiary and technology trend purposes. The AXEOS™ allows M/LE agencies to take a proactive approach to mitigate litigation related to ESWs injuries and deaths. The AXEOS™ is an integral part of any agency's ESW Measurement Management program.

The usual method for ESW measurement requires \$45,000.00 worth of equipment and is a tedious, time-consuming operation required to be performed by an electrical engineer. ESWs typically need to be sent to an outside testing facility and are out of service for weeks at a time. By contrast,

the AXEOS™ eliminates the need to calibrate probes and other electrical equipment, manually change resistors, record data, or remove ESWs from service use.

The AEGIS AXEOS™ can completely capture, compute, verify and characterize each waveform delivered from a 5-second ESW discharge in a matter of just 20 seconds. This process includes the auto scan of serial numbers, the badge number of operator, date, time, temperature, and location of testing. The AEGIS AXEOS™ is able to test current and future professional-grade ESWs and provides M/LE agencies, as well as medical examiners and coroners, with the flexibility to conduct a myriad of tests, including the IEC PT 62972.

“ESWs should not be deployed by M/LE agencies without the ability to accurately measure the electrical energy discharged by these weapons.”

– Ken Stethem, CEO AEGIS, January 2013

AEGIS INDUSTRIES, LLC
2275 Research Blvd, Suite 500
Rockville, Md 20850
+001.301.921.5988
www.AegisAxeos.com

US PATENT 8,324,902 B2



AEGIS

DEFEND. PROTECT. PRESERVE.



Evan Meenan

From: Mary-Kay Swanson
Sent: Tuesday, March 26, 2013 8:00 AM
To: Cindy Maguire; Evan Meenan
Cc: Mary-Kay Swanson
Subject: FW: Taser Forum Comment
Attachments: BPD Legislative Presentation on RTR-UOF-Taser.pdf

Came in last night.

MK

From: laura ziegler [mailto:zieweed@gmail.com]
Sent: Monday, March 25, 2013 11:57 PM
To: Mary-Kay Swanson
Subject: Taser Forum Comment

Please see the comments below and attached document.

Also, in response to Rep. Lippert's question about aggregate data on taser use: please see further below. Although the actual records summarized by Captain Filipek were withheld, perhaps that decision can be reconsidered. As for the spreadsheet, if the panel considers it of interest DPS should still have that document on file.

To: Taser Panel
From: Laura Ziegler

To supplement my three minute comments during the the public comment phase of the forum:

1. There is much controversy over the effects and risks of taser devices [aka electronic control devices aka conducted energy weapons] and the causes of deaths associated with their use. Something which gets insufficient emphasis and which is less open to dispute is that "[t]he tasered person also experiences an excruciating pain that radiates throughout the body." Bryan v. McPherson, 630 F.3d 805 (9th Cir. 2009). That should be reason enough to rule out using tasers to enforce compliance in a wide range of situations where the state's interest is less than compelling. Coupled with the mounting evidence of potential injury or death from these devices, such use is unconscionable.

In the words of the Commission for Public Complaints Against the Royal Canadian Mounted Police: "Central to the debate is the principle that decisions around when to deploy the weapon should be based on the principle of proportionality: the amount of force used should bear some reasonable relationship to the threat the member is facing and its impact on public safety." An "active resistance" threshold sets the bar far too low. If tasers are permitted I believe they cannot be justified absent assaultive behavior posing an imminent risk of grievous bodily harm to an officer or member of the public.

2. The Thomas R. Braidwood, Q.C., Commissions of Inquiry Under the Public Inquiry Act, SBC 2007, c. 9, investigated the use and safety of tasers, and the death of Robert Dziekanski at Vancouver Airport in 2007. The two reports and transcripts of the proceedings can be found at <http://www.braidwoodinquiry.ca> and provide much valuable material to inform the Vermont debate. Besides the evidence and testimony given (I recommend that of Drs. Vallance, Webster and Noone) and the findings and recommendations issued, both the Commissions of Inquiry and the Commission for Public Complaints Against the RCMP provide striking examples of oversight of law enforcement practice. Such oversight and complaint mechanisms are lacking in Vermont. **To meaningfully address taser policy, there must be some mechanism to make law enforcement accountable for adhering to it.**

3. I am concerned about the training given to law enforcement officers and the sources of the information used. The evidence base seems unduly influenced by Taser International or by the Institute for the Prevention of In Custody Deaths, which has close ties to Taser International, and its objectivity may be undermined by marketing and liability concerns.

Attached is the power point presentation made on Feb. 27 to the House Government Operations Committee by Burlington Police Department (Chief Schirling kindly provided me with a copy). The meeting was recorded by Legislative Council, and while the sound quality was poor, it was audible enough for me to transcribe an excerpt of Detective Sergeant Matthew Sullivan's presentation:

Excited delirium, agitated chaotic events. Now these, we see a lot of in Burlington and this has become something of a hot topic with tasers, all right.

What happened is there's new terminology here, agitated chaotic event. "Excited delirium" was typically used, and the medical community kind of draw a line and said, that's just law enforcement's term. Essentially, it's a catch all for stuff that they can't describe, saying the subject was

suffering from excited delirium when in fact it was something else, and who is law enforcement when in fact they have no medical training to actually put a diagnosis on somebody. Because as you'll see in these slides, the World Health Organization actually has some definitions, and so do some other [inaudible] manuals, [inaudible] excited delirium.

So, the newer technology is "agitated chaotic event" because we're describing facts rather than making a diagnosis.

So, we deal with this a lot. More than you would think, all right, and it's not a new thing. It didn't occur with taser, Dr. Luther Bell described Bell's Mania in 1849, all right, people who suffer mental health conditions, the brain chemistry gets out of whack, the chemicals get out of whack and they get into this excited delirium state, where you and I, say for example, we get on a treadmill or we do a strenuous workout -- then we can push ourselves, really to capacity and maybe beyond what we think is our capacity. But eventually your brain is going to send chemicals that say, enough's enough, you're done. All right, your body cannot go any longer and you need to stop and you're going to stop. because you have no choice, your brain sends those chemicals out. These people -- that chemistry is out of whack and it didn't happen. These incidents were documented, actually as early as the sixteen hundreds, but they were actually described with this medical term Bell's mania in 1849. All right, where people would get into this [inaudible word] acute onset of the symptoms, this excited state, yelling and screaming, and I'll cover some of the symptoms, and then would result in sudden death, all right, and essentially the person is dead and there was no, you know at a certain point they get to a certain, past the point of no return essentially, they're probably going to die no matter what, no matter what medical intervention is, is given.

So in the 1950s to the 1980s, there was less of this sudden, or, excited delirium, due to the fact that lithium was used, and was able to control people with mental health issues where the brain chemistry was out [inaudible]. In the 1980s then we saw an influx of cocaine in Miami and other places in the United States, we started to see cocaine psychosis, and a recent event of that is that, that horrible incident in Miami where that subject was found chewing up an individual's face down there, I think that may have been related to cocaine psychosis. All right, where he was ingesting massive amounts of cocaine over a period of time, and his brain chemistry was all out of whack, essentially he was crazy."

"... [S]o it does happen, occasionally. but the thing is, with this, is that when we come across subjects -- and we come across subjects in the worst state, OK -- and -- especially in Burlington where you have a large mental health population because we have a lot of services in Burlington for these people, so we're encountering this all the time -- on a regular basis."

After listening to his presentation I asked Mr. Sullivan how an observer could distinguish between someone experiencing "excited delirium" and someone experiencing a manic episode. He acknowledged that this would be problematic. I find the entire concept problematic, as do many medical experts -- some of whose testimony is available at the Braidwood site. **A disability population already particularly vulnerable to taser (given the known adverse cardiovascular effects of many psychiatric drugs) is even likelier to be targeted for their use when law enforcement officers are encouraged to view agitated, irrational behavior as a evidence of a potentially deadly syndrome requiring that anyone exhibiting it be quickly subdued, restrained and brought to an ER.**

I also want to flag this item from the power point:

Excited Delirium/Agitated Chaotic
Events continued

* International Classification of Disease acknowledges excited delirium listing:

- * 799.2X Abnormal Excitement
- * 296.00S Manic Excitement
- * 799.2AM Psychomotor Excitement
- * 307.9AD Agitation
- * 799.2V Psychomotor Agitation
- * 780.09E Delirium
- * 293.1J Delirium of Mixed Origin
- * 292.81Q Delirium, Drug induced
- * 292.81R Delirium, induced by Drug

None of these listings are for "excited delirium." At one point Mr. Sullivan said that the "International Classification of Diseases acknowledges excited delirium as a medical condition". But "excited delirium" is not listed in the International Classification of Diseases, or included in the DSM.

I am not suggesting that there are no phenomena that correspond to the behaviors and emergent conditions that have been packaged as "excited delirium." But it is all the more important for law enforcement to see what's in front of them without leaping to conclusions. People can be psychotic without having superhuman strength or requiring emergency intervention. People can be extremely emotionally disturbed without being impervious to pain. The suggestion that tasers are the intervention of choice is alarming, especially when reflected in disproportionate use on people with psychiatric disabilities.

4. The report of the taser study committee to the Montpelier City Council and the testimony of Jeff Dworkin, the study committee chair, has made most of what I might say redundant. However, below are two abstracts and the full text of a journal editorial published subsequent to that report, which underscore the evolving nature of the evidence on the safety of taser devices. As the editorial's authors conclude:

"At this point it is still uncertain how safe TASERS are and whether or not they are safe enough to be widely used by law enforcement agencies. The research is mixed, with some studies suggesting the TASER can cause sudden death and others suggesting it is very safe. There also may be bias in the TASER literature, since much has been funded by the makers of the device. As the TASER is becoming more common among law enforcement, more research is desperately needed."

A brain penetration after Taser injury: controversies regarding Taser gun safety.

Le Blanc-Louvry J, Gricourt C, Touré E, Papin F, Proust B.

Source

Department of Forensic Medicine, Rouen University Hospital-Charles Nicolle, 1 rue de Germont, 76031 Rouen Cedex, France.
isabelle.leblanc@chu-rouen.fr

Abstract

We report the case of a 27 year old man who was injured by a Taser gun device which penetrated the frontal part of the skull and damaged the underlying frontal lobe. Cerebral penetration was revealed by a brain CT scan. A neurosurgical procedure was required to remove the dart from the skull and brain and the evolution was successful allowing discharge of the patient one week later. There were no additional lesions, particularly electrifying lesion, as only one probe had penetrated the skull. We also observed the length of a Taser dart is sufficient to allow brain penetration. Fortunately, no infection or neurological complication occurred following brain injury. This case study underlines the potential risk induced by the use of Taser stun gun. Although generally regarded as a safe alternative, serious injuries have however been reported and questions regarding the safety of the device still remains unresolved.

Copyright © 2012 Elsevier Ireland Ltd. All rights reserved.

Circulation. 2012 May 22;125(20):2417-22. doi: 10.1161/CIRCULATIONAHA.112.097584. Epub 2012 Apr 30.

Sudden cardiac arrest and death following application of shocks from a TASER electronic control device.

Zipes DP.

Source

Krannert Institute of Cardiology, Indiana University School of Medicine, 1800 N Capitol Ave, Indianapolis, IN 46032, USA. dzipes@iupui.edu

Erratum in

- Circulation. 2012 Jul 10;126(2):e27.

Abstract

BACKGROUND:

The safety of electronic control devices (ECDs) has been questioned. The goal of this study was to analyze in detail cases of loss of consciousness associated with ECD deployment.

METHODS AND RESULTS:

Eight cases of TASER X26 ECD-induced loss of consciousness were studied. In each instance, when available, police, medical, and emergency response records, ECD dataport interrogation, automated external defibrillator information, ECG strips, depositions, and autopsy results were analyzed. First recorded rhythms were ventricular tachycardia/fibrillation in 6 cases and asystole (after ≈ 30 minutes of nonresponsiveness) in 1 case. An external defibrillator reported a shockable rhythm in 1 case, but no recording was made. This report offers evidence detailing the mechanism by which an ECD can produce transthoracic stimulation resulting in cardiac electrical capture and ventricular arrhythmias leading to cardiac arrest.

CONCLUSIONS:

ECD stimulation can cause cardiac electrical capture and provoke cardiac arrest resulting from ventricular tachycardia/ventricular fibrillation. After prolonged ventricular tachycardia/ventricular fibrillation without resuscitation, asystole develops.

<http://www.expert-reviews.com/doi/full/10.1586/erd.11.53>

Full Text

Expert Review of Medical Devices

November 2011, Vol. 8, No. 6, Pages 661-663 , DOI 10.1586/erd.11.53
(doi:10.1586/erd.11.53)

The TASER safety controversy

Ata Soleimanirahbar & Byron K Lee[†]

[†] *Author for correspondence*

The TASER & how it works

Electrical stun guns, which are also called neuromuscular incapacitating devices, are commonly used by law enforcement agencies to deal with violent or combative individuals. The most popular brand of these devices is the TASER® (Taser International, Scottsdale, AZ, USA) [1]. The TASER, is an acronym for Thomas A Swift Electronic Rifle, invented in the USA by Jack Clover, a NASA researcher in the 1960s [2]. Currently, there are two main police models, the M26 and X26 [3]. Recently, the manufacturer has introduced another model (X3), capable of firing three cartridges in a 'semi-automatic' mode [4]. Additionally, Taser International is marketing a model to civilians called the C2 [5].

The TASER appears very similar to a handgun. Instead of bullets, it ejects barbs that attach to victim's clothing or skin. Via these barbs, a high-frequency, high-voltage, low-amplitude current is delivered to abruptly stop people by causing involuntary muscle contraction and neuromuscular incapacitation [1,2]. Occasionally, the TASER is held against the target and deployed without firing the barbs. This is called 'drive stun' or 'dry TASERING' and is intended to cause pain without incapacitating the target [6].

Although TASERS are universally acknowledged to be a safer alternative to firearms, there is a raging debate over whether or not it is safe enough to be in widespread use by law enforcement officials [1].

The controversy surrounding the TASER

The research on the TASER is conflicting regarding the safety of the device. Some studies suggest that the TASER can dangerously pace the heart into ventricular fibrillation (VF), a life threatening arrhythmia. Animal studies in pigs have shown that TASERS can capture ventricular myocardium with the critical aspect being an electrical vector near the heart [7,8] and some studies have been able to show induction of VF with standard TASER discharges [8,9]. Clearly, anatomical and electrophysiological differences between humans and pigs in the controlled, fully anesthetized condition in which these studies were performed limit their generalizability to humans [10]. However, in humans, there is one case report demonstrating capture of ventricular myocardium at high rates [11] and another describing a victim who was found in VF after TASER application [12].

By contrast, other human studies have concluded that the TASER is generally safe by showing no harm with TASER applications to the back in resting, healthy volunteers [13,14]. We cannot expect these experiments with subjects in a controlled environment to be much of an approximation of the real-world situations where the TASER is used. Police suspects resisting arrest likely have a very unique physiologic situation (hyperadrenergic state), environmental conditions (restraint techniques, multiple TASER applications near the heart on the torso) and external influences (illicit drugs), any of which may put them at higher risk for sudden death.

While most researchers are evaluating the possible cardiac effects of the TASER by determining whether TASERS can directly pace the heart into a lethal ventricular tachyarrhythmia, either by extreme rapid pacing or discharge during the vulnerable period in the cardiac cycle, some other investigators believe that TASERS may also increase the risk of sudden death by another mechanism termed excited delirium [15]. Excited delirium is a much-debated condition, which may result in sudden death after a violent struggle, often with law enforcement agents [16]. We do not know the mechanism of excited delirium but it seems that a surge in adrenergic tone, hyperthermia or acidosis may decrease the threshold for life threatening arrhythmias [15,16]. Therefore, excited delirium may be another potential mechanism by which TASERS may harm a police suspect. TASER deployment can cause severe pain, which would undoubtedly lead to an increase in adrenergic tone that could be a trigger or contributory factor for excited delirium. In addition, studies in both animal models and in humans have demonstrated that TASER application can cause transient acidosis, that may play a role in the development of excited delirium [17,18]. There are critics of the connection between TASERS and excited delirium. They argue that since the mechanism of this entity has not been clearly elucidated, it is unfair to cite the TASER as a contributor [19].

There are few epidemiological data to help us determine if the TASER has been dangerous or safe as it is used in the real world. The data collection regarding the use of the TASER and any resultant harm is not uniform and is performed sporadically by police departments. Nevertheless, we collected data from many police departments in California using the TASER. In analyzing the data together, we found that in the first

full year of TASER deployment, there was a statistically significant 6.4-fold increase in the rate of in-custody sudden deaths not involving lethal (firearm) force when compared with the predeployment period. There was no improvement in the rate of officer injuries as one might expect with the issuing of TASERs to the officers. Notably, the rate of in-custody sudden deaths did go back down to predeployment levels after the first full year of TASER use [1].

The debate regarding the safety of the TASER has recently become even more contentious. We recently published a study showing that there may be bias in the TASER literature. We found that among studies where an author was affiliated with TASER International, 96% of articles concluded the device was unlikely harmful (26%) or not harmful (70%). By contrast, among the articles where none of the authors had an affiliation with the company, only 55% concluded that TASERs are unlikely harmful (29%) or not harmful (26%). The studies where the author was affiliated with the TASER International had 18-times higher odds to conclude that the device was safe, suggesting that the literature may be severely biased [20].

Next step

This TASER controversy will likely continue on at least into the next decade. There are advocates on both sides of this debate who argue passionately. To move forward, we will require more research to identify and categorize TASERs deployment complications. We will also need more uniform data collection among police departments to allow quantification of these complications as they occur in the real world. Only then will we have an accurate appraisal of the dangers of the TASER and only then will we be able to know how it should be used by law enforcement, if at all.

Conclusion

At this point it is still uncertain how safe TASERs are and whether or not they are safe enough to be widely used by law enforcement agencies. The research is mixed, with some studies suggesting the TASER can cause sudden death and others suggesting it is very safe. There also may be bias in the TASER literature, since much has been funded by the makers of the device. As the TASER is becoming more common among law enforcement, more research is desperately needed.

Financial & competing interests disclosure

The authors have no relevant affiliations or financial involvement with any organization or entity with a financial interest in or financial conflict with the subject matter or materials discussed in the manuscript. This includes employment, consultancies, honoraria, stock ownership or options, expert testimony, grants or patents received or pending, or royalties.

No writing assistance was utilized in the production of this manuscript.

References

- 1 Lee BK, Vittinghoff E, Whiteman D, Park M, Lau LL, Tseng ZH. Relation of TASER (electrical stun gun) deployment to increase in in-custody sudden deaths. *Am. J. Cardiol.* 103(6),877–880 (2009). [CrossRef] [Medline]
- 2 Robb M, Close B, Furyk J, Aitken P. Review article: emergency department implications of the TASER. *Emerg. Med. Australas.* 21(4),250–258 (2009). [CrossRef] [Medline]
- 3 Holden SJ, Sheridan RD, Coffey TJ, Scaramuzza RA, Diamantopoulos P. Electromagnetic modelling of current flow in the heart from TASER devices and the risk of cardiac dysrhythmias. *Phys. Med. Biol.* 52(24),7193–7209 (2007). [CrossRef] [Medline] [CAS]
- 4 Dawes DM, Ho JD, Reardon RF *et al.* The respiratory, metabolic, and neuroendocrine effects of a new generation electronic control device. *Forensic Sci. Int.* 207,55–60 (2011). [CrossRef] [Medline]
- 5 Jauchem JR, Seaman RL, Klages CM. Physiological effects of the TASER C2 conducted energy weapon. *Forensic Sci. Med. Pathol.* 5(3),189–198 (2009). [CrossRef] [Medline] [CAS]

Choose
works

- 6 Nanthakumar K, Masse S, Umapathy K, Dorian P, Sevaptsidis E, Waxman M. Cardiac stimulation with high voltage discharge from stun guns. *CMAJ*178(11),1451-1457 (2008). [CrossRef] [Medline]
- 7 Lakkireddy D, Wallick D, Ryschon K *et al.* Effects of cocaine intoxication on the threshold for stun gun induction of ventricular fibrillation. *J. Am. Coll. Cardiol.*48(4),805-811 (2006). [CrossRef] [Medline] [CAS]
- 8 Nanthakumar K, Billingsley IM, Masse S *et al.* Cardiac electrophysiological consequences of neuromuscular incapacitating device discharges. *J. Am. Coll. Cardiol.*48(4),798-804 (2006). [CrossRef] [Medline]
- 9 Walter RJ, Dennis AJ, Valentino DJ *et al.* TASER X26 discharges in swine produce potentially fatal ventricular arrhythmias. *Acad. Emerg. Med.*15(1),66-73 (2008). [CrossRef] [Medline]
- 10 Pippin JJ. TASER research in pigs not helpful. *J. Am. Coll. Cardiol.*49(6),731-732 (2007). [CrossRef] [Medline]
- 11 Cao M, Shinbane JS, Gillberg JM, Saxon LA, Swerdlow CD. TASER-induced rapid ventricular myocardial capture demonstrated by pacemaker intracardiac electrograms. *J. Cardiovasc. Electrophysiol.*18(8),876-879 (2007). [CrossRef] [Medline]
- 12 Kim PJ, Franklin WH. Ventricular fibrillation after stun-gun discharge. *N. Engl. J. Med.*353(9),958-959 (2005). [CrossRef] [Medline] [CAS]
- 13 Levine SD, Sloane CM, Chan TC, Dunford JV, Vilke GM. Cardiac monitoring of human subjects exposed to the TASER. *J. Emerg. Med.*33(2),113-117 (2007). [CrossRef] [Medline]
- 14 Vilke GM, Sloane CM, Bouton KD *et al.* Physiological effects of a conducted electrical weapon on human subjects. *Ann. Emerg. Med.*50(5),569-575 (2007). [CrossRef] [Medline]
- 15 Strote J, Range Hutson H. TASER use in restraint-related deaths. *Prehosp. Emerg. Care*10(4),447-450 (2006). [CrossRef] [Medline]
- 16 Stratton SJ, Rogers C, Green K. Sudden death in individuals in hobble restraints during paramedic transport. *Ann. Emerg. Med.*25(5),710-712 (1995). [CrossRef] [Medline] [CAS]
- 17 Jauchem JR, Sherry CJ, Fines DA, Cook MC. Acidosis, lactate, electrolytes, muscle enzymes, and other factors in the blood of *Sus scrofa* following repeated TASER exposures. *Forensic Sci. Int.*161(1),20-30 (2006). [CrossRef] [Medline] [CAS]
- 18 Ho JD, Miner JR, Lakireddy DR, Bultman LL, Heegaard WG. Cardiovascular and physiologic effects of conducted electrical weapon discharge in resting adults. *Acad. Emerg. Med.*13(6),589-595 (2006). [CrossRef] [Medline]
- 19 Hoffman L. ACEP recognizes excited delirium syndrome. *Emerg. Med. News*31(10), (2009).
- 20 Azadani PN, Tseng ZH, Ermakov S, Marcus G, Lee BK. funding source and author affiliation severely biases TASER research. *Am. Heart J.*162(3),533-537 (2011). [CrossRef] [Medline]

Affiliations

Ata Soleimanirahbar

Cardiac Electrophysiology Section, Division of Cardiology, University of California, San Francisco, School of Medicine, San Francisco, CA, USA.

Byron K Lee

Cardiac Electrophysiology Section, Division of Cardiology, University of California, San Francisco, School of Medicine, San Francisco, CA, USA. leeb@medicine.ucsf.edu

From: **John Filipek** <jfilipek@dps.state.vt.us>
 Date: Wed, Oct 17, 2007 at 6:43 PM
 Subject: Re: Request for information
 To: zieweed@gmail.com, John Filipek <jfilipek@dps.state.vt.us>

> Dear Ms. Ziegler,

>

> Thank you for clarifying your request. In response, I have compiled the

> following documents:

- >
- > 1) email correspondences related to taser use;
- > 2) a spreadsheet summarizing non-lethal uses of force for the approximate
- > period that the Department has been using tasers;
- > 3) informational documentation from Taser International; and
- > 4) narrative summaries of taser use reports.

>

> I can provide the documents in the first three categories above. The

> spreadsheet was created by Sgt. Kalinowski at my request this past summer. It

> was this spreadsheet that I reviewed during this process and not the individual

> use-of-force reports. Those records in the first three categories are comprised

> of approximately 90 pages. The fee for providing those copies is \$.05 per page.

> I will provide those copies upon receipt of the fee.

>

> The Department considers the narrative summaries in the fourth category above to

> be records dealing with the detection and investigation of crimes. Thus, it is

> our position that those documents are exempt from public inspection under Title

> 1 of the Vermont Statutes Annotated, Section 317(c)(5). However, I am willing,

> in this instance, to summarize the contents of those documents in a manner that

> will provide you with information related to taser use while not jeopardizing

> the public safety interest upon which the exemption is based.

>

> I communicated with the members of VSP's Tactical Services Unit (TSU)

> regarding their experiences with tasers (as of this date, only TSU members have

> been issued tasers). Please find below summaries of those communications:

- >
- > 1) Trooper reports tasing a subject who was wrestling with and, despite being
- > handcuffed, fighting with 2 deputies and a Trooper. He was also kicking at the
- > windows of the cruiser and attempting to grab the testicles of the Trooper.
- > Subject had been sprayed with OC (pepper spray) with no effect. Trooper tased
- > the subject with direct stun. Subject began to act up again but, upon mere
- > sight of taser, stopped.
- > 2) Report of a Trooper executing an arrest warrant at a residence. Subject had
- > several knives on a table in front of him and refused to move away from the
- > knives. Trooper removed taser and advised subject he was going to be tased.
- > Subject turned and put hands behind back to surrender. Taser was not deployed.
- > 3) Subject returned to residence where Troopers were executing a search
- > warrant. Subject began to fight with 3 Troopers. The fighting continued
- > despite being sprayed with OC. Trooper announced that he was going to tase
- > subject. Subject immediately gave up. Taser was not deployed.
- > 4) VSP assisted local police department with apprehending a woman who, in
- > response, place a large Rottweiler dog between the officers and herself. The
- > dog was aggressive and it appeared that it would attack. The Trooper announced
- > that he would have to tase the dog. He then removed his taser, put red laser
- > sight "œdotâ€ on the dog's back and asked the owner to remove the dog to
- > another room. The subject immediately put the dog in another room and then
- > submitted without further incident. Taser was not deployed.
- > 5) Mental health subject with homicidal tendencies (according to local mental
- > health counselors) had to be involuntarily committed. Subject attempted to push
- > one of the Troopers and tried to throw that Trooper down when he was trying to

- > control the subject. Subject was tased and taken into custody.
- > 6) Domestic call where female had been beaten by husband. Husband, who had
> been in bed, charged down the stairs and began attacking 2 Troopers at scene.
> Subject was in confined area of his house and was uncontrollable. After short
> brawl, subject was tased and taken into custody.
- > 7) An armed subject was lying on ground with hands underneath him after being
> shot by TSU members. Subject was still moving and would not respond to
> commands. Subject was tased and cuffed.
- > 8) Local police were involved in a motor vehicle pursuit. Upon stopping, a
> very large passenger AND driver (brothers) got out and confronted local
> officers. These subjects were provoking a fight, then began to throw large
> pieces of firewood and a hose reel at the officers then began to push and shove
> the officers. Police could make no progress with these subjects. Trooper
> arrived and advised both to stop. One subject advanced on the officers, the
> Trooper announced that he would tase and then did so. Tased subject hit the
> ground. Second subject saw this and immediately complied by throwing himself on
> the ground.
- > 9) Residential area had a stray dog behaving strangely and appearing sick.
> Attempts to get local vets to respond with tranquilizers were unsuccessful. Dog
> was going to be shot by the officer until the taser was considered. Troops
> drove close to dog and tased it. The dog was secured with a rope and turned
> over to local vet.
- > 10) Trooper backed up a local police department to assist with a combative,
> suicidal subject who had slit his wrists and was bleeding profusely. Subject
> was uncooperative and was not allowing medical treatment. He continued to be
> combative. The Trooper advised the subject he would be tased. Subject then
> complied with directions and was given medical treatment. Taser was not
> deployed.
- > 11) Female subject sprayed her parents with OC spray and barricaded herself in
> a room. When Troops kicked in her door and approached, she reached for a fanny
> pack. Subject was tased but tried to get back up. She was tased again and was
> taken into custody.
- > 12) Troopers were trying to take a subject into custody. The subject
> barricaded himself in his house. He would not respond or cooperate despite the
> use of copious amounts of gas. Subject was tased and taken into custody.
- > 13) A 40-mile motor vehicle pursuit was followed by 1-mile foot chase. The
> subject then turned and ran toward Troopers who were pointing guns at the
> subject. Trooper indicated that he would tase the subject and the subject
> attempted to flee. Subject was tased and taken into custody.
- > 14) An armed subject was holed up in the woods and was threatening to shoot
> police. Subject was tased and taken into custody.
- > 15) A very large male was wanted for assaulting his infant child. 3 Troopers
> responded. Subject refused to all requests to comply. Trooper removed taser
> and advised subject he would be tased. Subject gave up. Taser was not
> deployed.
- > 16) Troopers were executing a search warrant. A pit bull inside the house was
> aggressively barking and growling. Dog actually had a cut on its lip from
> hitting against a window as it barked/growled. As the Troopers knocked on the
> door, the dog was jumping against the door and aggressively barking and
> growling. As Troopers began to open the door, the dog aggressively kept trying
> to get through the opening so that even if they had a dog catch pole, it would

>
> -----Original Message-----
> From: John Filipek
> Sent: Wednesday, October 17, 2007 3:00 PM
> To: Howard Kalfus
> Subject: RE: Request for information

>
> Please find my additions attached.

>
> -----Original Message-----
> From: Howard Kalfus
> Sent: Wednesday, October 17, 2007 10:08 AM
> To: John Filipek
> Subject: RE: Request for information

>
> I'll be right there to discuss this. Thanks.

>
> -----Original Message-----
> From: John Filipek
> Sent: Monday, October 15, 2007 2:22 PM
> To: Howard Kalfus
> Subject: FW: Request for information

>
> -----Original Message-----
> From: laura ziegler [<mailto:zieweed@gmail.com>]
> Sent: Monday, October 15, 2007 2:09 PM
> To: John Filipek
> Subject: Re: Request for information

>
> Dear Captain Filipek,

>
> Thank you for your reply. I am asking for certification that there are no
> records pertaining to a review by the State Police of Taser use.
> Your written certification is limited to records concerning revision of Taser
> policy. Taser use is not limited to revision of a Taser policy.

>
> My understanding from attending meetings of the Act 80 Oversight Committee is
> that there is an ongoing review by the State Police of Taser use. That
> information came from the State Police, including at a meeting of the Committee
> on Sept. 27. If there was and is no review (in the past year) of Taser use by
> the State Police, please clarify that this is the case. If no records have been
> generated or received that pertain to a review of Taser use, please certify to
> this.

>
> Yours truly,
>
> Laura Ziegler.

**Burlington Police Department
Use of Force/Response to
Resistance Training**

Prepared for VT Legislature Forum
February 27th, 2013

Purpose

- This presentation is designed to provide context and an overview of a few components of contemporary response to resistance/use of force training, focusing on Taser training as the legislature considers issues related to Taser use. It is NOT comprehensive and represents only a snapshot of a voluminous amount of information on the topic of response to resistance and Taser use.

Burlington Police Department

Response to Resistance / Use of
Force – Background Information

General ANNUAL Statistics

- 40,000 calls for service
- 32,828 incidents responded to (2012)
- 7,000 criminal investigations
- 3,500 arrests
- Over 100,000 individual contacts

Taser Use 2012

- | | |
|--------------------------------------|----|
| • Displayed and not fired | 37 |
| – Once every 887 incidents | |
| • Used in drive stun or contact mode | 11 |
| – Once every 2,984 incidents | |
| • Fired / probes discharged | 25 |
| – Once every 1,313 incidents | |

Perspective for this presentation

- Tasers were discharged and/or used in 1/10th of 1 percent of incidents responded to in 2012 in Burlington
- They were displayed in another 1/10th of 1 percent of incidents
- Response to resistance using some type of tool occurred in approximately 1 percent of incidents

Perspective continued

- Response to resistance / use of force training is a critical and important component of what we do but it is one fragment of a very complex and dynamic training and operational landscape which changes daily and includes more topics than can be described here today

Perspective – topic areas or overlap

-
-
-
-
-
-
-
-

Other perspectives

-
-
- 800,000 police officers (source – IACP)
- Nationally, police have approximately 1 million encounters/interactions with people per day (source – Lexipol – Gordon Graham)
- Approximately 150 people are shot and killed by police annually in the U.S. and approximately 580 die in encounters and/or custody (in 2011 175 officers died in the line of duty – 67 were shot and killed)
- Estimates range - 110,000 to 195,000 people die annually as a result of medical errors or malpractice

Perspective

- We do our best, every day, to mitigate risk to the public, to officers, and to subjects we are in contact with against a backdrop of dangerous, unpredictable, and rapidly evolving circumstances and information
- The use of Taser is just one fragment of the overall operating environment

Origin of Taser use in Burlington

After a full year of research and policy development, which included empanelling an advisory group consisting of Department members, members of the emergency medical community, physicians, and members of the Burlington Police Commission representing the public, the Burlington Police Department began using Tasers in May of 2006.

Since deployment of Taser

- 60 units
- Officer injuries at scenes where a Taser is present have declined dramatically
- Subject injuries when Taser is used have also declined
 - and not with great frequency
- The presence of a Taser at a scene can assist in de-escalating that event (more than 50% of Taser use in 2012 is presence/display only)

Good Afternoon

- Detective Sergeant Matthew Sullivan
- Juris Doctor Quinnipiac University School of Law 1997
- Admitted to the Connecticut Bar fall of 1997
- Currently licensed to practice law in Connecticut
- Burlington Police 2000-present
- Response to Resistance / Use of Force Instructor since 2003
- Taser Instructor since 2005

51

Use of Force/Response to Resistance

Burlington Police Department Policy DD05:
 "Officers employ objectively reasonable force necessary to accomplish a legal purpose. Officers should use only the force that is necessary and appropriate for compliance to control a suspect and only until compliance or control has been achieved."

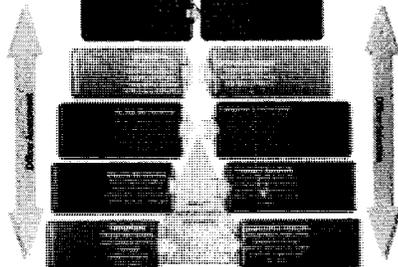
Use of Force/Response to Resistance

- resistance (UOF option) is objectively reasonable, the officer must consider:
 - when the force option is employed
 - Whether or not the subject poses an immediate physical threat to the officer or others and the degree of that threat
 - Whether the subject is actively resisting or attempting to evade arrest by flight
 - Whether the totality of the circumstances justify the Officer's response.
 ((Graham v. Connor 490 US 386 (1989))

Use of Force/Response to Resistance

"assume unreasonable risks. In assessing the need to use force, the paramount consideration should always be the safety of the officer and the public. The reasonableness of an officer's decision to use force under this policy must be viewed from the perspective of a reasonable officer faced with the circumstances of the officer on the scene, who may often be forced to make split-second decisions in circumstances that are tense, uncertain, rapidly evolving and without the advantage of 20/20 hindsight"

Disclaimer: This diagram is an example of a continuum. Although continuums are useful for training the use of force standard is the legal standard of Graham v. Connor and you should not necessarily attempt to match a specific response to resistance to a specific suspect behavior. The totality of the circumstances dictates the appropriate response. For example this continuum shows ECD use appropriate for active resistance and although ECD use may be appropriate in some situations of active resistance case law indicates officers should articulate circumstances involving potential for injury.



Use of Force Options

- Presence / Verbal Commands
- Control / Restraint techniques
- Aerosol Agents – OC / Pepper Spray
- Electronic Control Device / Conducted Energy Weapon (ECD/CEW)
- Police Batons - Straight or expandable
- Specialty (Less Lethal) Impact Munitions – bean bag/stingball/Pepperball
- Lethal Force

52

Use of Force Options

- th
—
reasonable, we must consider the risk of bodily harm that the officers actions posed to the suspect in light of the threat to the public that the officer was trying to eliminate ((Scott v. Harris, 550 US 372, 383 (2007))

Quantum of Force Analysis

- The reasonably foreseeable (for the officer given the facts and circumstances of the incident) effects and injuries of a chosen force option under the totality of the circumstances of the force option use

Reality of RTR / UOF

- poses some risk of death. ((Garrett v. Athens-Clarke County, 378 F.3d 1274,1280, n.12 (11th Cir. 2004))

Training

- Yearly training / block of instruction in use of force / response to resistance
- Training includes firearms, MDTs, and Taser
- Training in involves hands on techniques with certified instructors (scenarios, practical exams)

Physiology Force Science Research Center Studies

- heart, stomach, intestines we are usually not conscious of their constant function.
- The Autonomic Nervous System is divided into two categories:
 - Parasympathetic Nervous System "rest and digest"
 - Sympathetic Nervous System "fight or flight"
- The Autonomic Nervous System constantly functions and we will automatically react to certain triggers that cause physiology changes (hence why we are taught to index our finger with firearms)

4 triggers of the Sympathetic Nervous System

1. Objective threat perceptions
2. Objective fear perceptions
3. Physical exhaustion
4. Startle response

When the Sympathetic Nervous System kicks in there are physiologic changes to the body that cannot be consciously controlled.

- Heart rate increases
- Vasoconstriction occurs- blood vessels constrict and this can result in a loss of fine motor skill or dexterity. This may also distort vision or result in tunnel vision
- Perception narrowing- The brain will focus on the threat at hand and exclude less critical sensory inputs. (firearms teaches officers to scan)
- Vision- usually becomes the primary sensory input, but may be narrowly focused. The visual field may be reduced by up to 70%. Pupils will dilate that may result in a loss or impairment of near vision (w/in 4 feet). Loss of monocular vision sometimes making it difficult to use firearms scopes or sights. Loss of depth perception.

Heart Rate and the effect it has on dexterity

- lose fine motor skills (hand eye coordination)
- When the heart rate reaches 145 BPM complex motor skills deteriorate (an example of complex motor skills are muscle groups operating in a series of movements)
- Gross motor skills are simple strength skills-Gross motor skills are enhanced by Sympathetic Nervous System activation.
- Optimal performance heart rate is 115 BPM to 145 BPM.

Cognitive skills

- A person's ability to process information and make rational decisions can be adversely affected by sympathetic nervous system activation.
- Survival Reaction Time- is the process of perceiving a threat and initiating a response. This is a four step process: 1. Perception, 2. Analyzing and evaluating the level of the threat, 3. Formulating a response, 4. initiating a motor response.
- Information processing begins to deteriorate when the heart rate exceeds 145 BPM
- Physical performance becomes very poor when the heart rate exceeds 175 BPM

Reaction Time

- Reaction time may increase up to 4 times with Sympathetic Nervous System activation.
- Critical incident amnesia will affect an officer's ability to recall and write accurate incident reports.
- Studies have shown two sleep cycles are optimal for memory recall

Law Enforcement Exertion Studies

- Enforcement Officers.
- The average approximate all out endurance time is 10-15 seconds. After this the officer will experience a dramatic decrease in strength. 45% decrease in maximum strength.
- The next 45 seconds is a stage of intermediate strength and endurance. Thus after the initial 15 seconds an officer will be operating at 55% of their maximum strength.
- At 60 seconds into an all out confrontation an officer's strength will drop to 35% of their maximum strength.
- The first 90 seconds the officer is operating using anaerobic strength.
- After the first 90 seconds the officer is using aerobic energy and they are operating at 31% of their maximum strength.
- During high stress, extreme exertion events the officer's environmental awareness is drastically reduced as well as the officer's ability to perceive and remember events accurately.

Excited Delirium / Agitated Chaotic Events

- Excited Delirium / Agitated Chaotic Events are not new
- Dr. Luther Bell describes "Bell's Mania" (1849)
- 1950s to 1980s less studies due to Lithium
- 1980's "cocaine psychosis"
- The World Health Organization defines "Sudden Death" as cardio-respiratory collapse that occurs within 24 hours of the onset of symptoms
- "In custody death" subjects in custody of corrections or law enforcement

Excited Delirium / Agitated Chaotic Events continued

- International Classification of Disease acknowledges excited delirium listing:
- 799.2X Abnormal Excitement
- 296.00S Manic Excitement
- 799.2AM Psychomotor Excitement
- 307.9AD Agitation
- 799.2V Psychomotor Agitation
- 780.09E Delirium
- 293.1J Delirium of Mixed Origin
- 292.81Q Delirium, Drug Induced
- 292.81R Delirium, Induced by Drug

Excited Delirium Causes

- Metabolic (e.g. low blood sugar)
- Pharmacologic (e.g. cocaine)
- Infectious (e.g. meningitis)
- Psychological (e.g. psychological illness or condition)

Agitated Chaotic Event Symptoms

- *clothing is often seen*
- Dilated pupils "eight ball eyes" / breaking glass
- Subject may be foaming at mouth / uncontrollable shivering or shaking / subject may exhibit pressured or forceful staccato speech
- Subject may run into traffic or exhibit wild uncontrolled running

Agitated Chaotic Event Tactics

- Normal Tactics may not work / ECD may be the best tool for control because pain compliance will not work and subject may exhibit unlimited endurance. If ECD is used least number of cycles to control and secure subject for transport.
- Multiple officers likely to be required to control / stage and formulate plan of action prior to attempting control.
- Monitor "at risk" subjects and call EMS / have EMS stage prior to contact / document that you conveyed to medical personnel your opinion of Excited Delirium / Agitated Chaotic Event
- Deaths may be unavoidable regardless of outcome
- Goal should be to take the subject into custody as soon as possible and immediately transport to the ER for medical attention 54

Burlington Police Department Taser Training

Prepared for VT Legislature Forum
February 27th, 2013

Good Afternoon

- Officer Jason Bellavance
—
- Certified Taser Instructor
—
- Certified Taser Master Instructor
—
- BA Psychology, Minor Biology, Leadership
—
- MS Organizational Leadership
—

Exposures in Training

- 2 full exposures
- In excess of 75 drive stun exposures
- Administered exposures to 40+ users/instructors
- Deployed in the line of duty 5 times

0

Injuries from Taser use on citizens or in training

What Taser International Requires

- Initial Certification (new Taser user)
 - 6 hours minimum
 -
 -
 -
 - Pass a 50 question written test
 - Pass a functional test
 - Fire no less than two live cartridges

What Taser International Requires

- Yearly re-certification
 - No time minimum
 - instructional materials
 - Cover training bulletins
 - Pass written test
 - Pass functional test
 - Fire no less than 2 live cartridges

What the Burlington Police Department adds to Taser Training

- Meet and cover all Taser International training requirements (new and yearly certifications)
- Excited delirium/Agitated Chaotic Episodes
- Current department response to resistance/use of force policy
 - Burlington DD05

What the Burlington Police Department adds to Taser Training

- In depth review of case law/incidents
 - Old, New, and Pending case law (local and federal)
 - Discuss deployments within the department
- Scenarios and stress based practical exercises

How Tasers are deployed

- Taser deployment is guided by case law and department policy
- To deploy the taser, a subject must be:
 - An immediate threat of harm/injury
 - Fleeing or flight risk from a serious offense
 - Officers may give warning before a taser is applied if appropriate (not every situation allows this)
 - Graham v. Connor, 1989

Taser Deployment

- The presence of a Taser can diffuse a situation
- Taser devices are effective because of how they work on the body
- This makes them effective in controlling subjects and reducing injuries to officers and subjects alike

Taser Deployment

- Deployment is based on overt, observable acts
- Special considerations are given for:
 - Environmental factors
 - Frail, elderly, or the infirm
 - Small children
 - Obviously pregnant females
 - Obviously cognitively impaired

Excited Delirium/Agitated Chaotic Episodes

- Train to recognize signs of excited delirium/ agitated chaotic episodes
 - Sweating, disrobing, breaking glass
 - Impervious to pain, superhuman strength
- Goal is to control the subject and get them to medical attention as soon as possible

Questions