

Taser Technology Report

Executive Summary

Currently, more than 15,000 law enforcement agencies utilize the taser X-26 model as a strategic part of their mission to promote public safety, as well as officer safety. The appeal of less-than-lethal technologies is that they are deployed with the intent *not* to kill, but to incapacitate temporarily – giving law enforcement a momentary window to gain control over uncooperative and uncontrollable subjects.

Over the last three years in particular, the Durham Police Department (DPD) has held intermittent, but detailed discussions, on adding taser technology to the department's use of force continuum. DPD administrators' consideration of tasers as a *less-than-lethal use-of-force* option is motivated by the department's continual goal to achieve improved officer and citizen safety in the course of crime abatement.

This report provides information on DPD's departmental discussions on tasers; collaborations with technology experts and pertinent City administrators; case studies of taser usage by other police departments; the mechanics and physical effects of taser technology; as well as benefits of, and challenges to, successful implementation of taser technology. Based on the research and discussions captured in this report, it is recommended that DPD add taser technology to the available force options for officers.

Background

DPD's initial interest in taser guns dates back to the 1980s when the department purchased a taser gun device from Tasertron in Yucaipa, CA. At that time the technology had been available to law enforcement only four years. Existing departmental documentation does not substantiate why DPD did not continue updating the taser gun as technology improved. The department's last record of known purchase of replacement parts for the device was in 1993. It is significant to note that the Tasertron device (which is no longer manufactured) was classified by the Federal Bureau of Alcohol, Tobacco, Firearms and Explosives as a firearm because it used black powder for its propellant. The modern taser uses compressed nitrogen gas as the propellant and is not classified as a firearm. Attachment 1, "What is a Taser?", provides in-depth historical and scientific/mechanical insights on taser technology.

Spurred by the existing lack of less-than-lethal force options for officers, DPD discussions on taser technology resumed in 2004. Corporal C. Fisher, who was then assigned to the Professional Standards division, was tasked with gathering information about the technology. Cpl. Fisher collaborated with TASER International (the most widely recognized distributor of the technology) to conduct an onsite presentation for DPD commanders and provide factual information that would demonstrate the use, efficacy, and force of the technology.

As part of the presentation, Cpl. Fisher volunteered to be tased. Observers noted the following: He immediately lost control of his muscles, but once the tasing was over, he immediately regained his ability to move on his own. Cpl. Fisher did advise that it was a very painful experience.

Shortly after DPD's initial in-house taser demonstration, negative publicity erupted nationwide surrounding police use of tasers. The issue centered on in-custody deaths and whether the use of tasers played a role. DPD administrators made a decision to suspend taser discussions at that time pending subsequent outcomes of the negative coverage.

The next year, 2005, at the request of this agency Lawmen's, a supplier of law enforcement tools, visited the department to demonstrate several less-than-lethal weapons at the DPD firing range. They were asked to bring non-lethal weapons to our agency for testing and review. This was organized with the Operations Bureau and the Training Division. TASER International was one of the non-lethal tools demonstrated and they presented strong documentation from agencies across the nation that tasers –

- Reduce incidents of officer injury;
- Reduce incidents of suspect injury;
- Reduce liability claims; and
- Reduce number of use-of-force claims.

Force Injuries	2002	2003	2004	02-04 change
Officer Injury	94	51	41	-56.4%
Suspect Injury	200	220	42	-79%

*taken from the Charlotte-Mecklenburg Police Department report "TASER PROJECT First Year – Full Deployment Study". CMPD only had testing-level taser deployment in 2002, partial deployment in 2003, and full deployment in 2004.

The safety and cost benefits documented in TASER International's presentation renewed DPD discussions on implementing taser technology. In 2006, Officer J. Robertson continued the department's research on taser technology. Strategies outlined by the International Association of Chiefs were utilized to guide the research. Officer Robertson's findings were consistent with the previous data - that tasers increase officer safety; decrease suspect injuries; and lessen incidents of litigation related to use-of-force.

It is important to note that TASER International has never lost a product liability lawsuit. As of 2006, 30 wrongful death or injury suits had been dismissed or a judgment entered in favor of TASER International.

In each round of the department's research, feedback and guidance was also solicited and received by the City's Office of Risk Management (Laura Henderson) and the City Attorney's Office (Atty. Kim Grantham). Risk Manager Laura Henderson polled risked managers of cities utilizing tasers.

NC League of Municipalities Director of Claims, Steven Lee, provided valuable perspectives during the research process. In his response to DPD inquiries he quoted an excerpt from an article in the January 2006 issue Journal of Clinical Forensic Medicine (written by Emma Jenkinson, Clare Neeson and Anthony Bleetman): "At all levels of deployment, the taser carries a lower injury rate to officers and subjects than empty-handed physical skills, CS spray and batons. In addition, it carries a lower injury rate to subjects than police dog deployment."

Case Studies and Research Findings on Taser's Physical Effects

The department's research incorporates data from local and national agencies, TASER International, and a wide array of internet-based resources and independent studies. As TASER International is the pioneer in this technology, a considerable amount of data came from their research compendium. The company, however, keeps updated studies from various agencies that voluntarily submit statistical data about their experiences with the device. Information was also garnered from NC law enforcement agencies (specifically, Charlotte-Mecklenburg, Duke University, UNC, Fayetteville, Cary, and Raleigh) that employ taser technology, as well as supportive case studies and endorsements from a variety of government and research organizations.

A few case studies and perspectives from various organizations are provided here:

Cincinnati Police Department- An unfortunate incident involving a 350-pound male prompted the Cincinnati Police department to utilize tasers. The male who was acting bizarre at a restaurant did not comply with police verbal commands and swung at the officers. He was struck 36 times to the torso and legs before they could bring him under control. When officers laid him on his stomach while they regrouped, the man died. Training protocols often suggest not putting a person in handcuffs on his/her stomach after a physical altercation. Cincinnati PD began implementing tasers later that year (2003). The results the following year were dramatic. January through June 2003 compared to the same time frame of 2004, showed a 31% decrease in excessive force complaints; a 70% decrease in the use of chemical spray; and injuries to in-custody persons dropped 30%. The most significant change was the 70 % decrease in assault on officers.

Force Science Research Center- is a non-profit institution based at Minnesota State University, Mankato, and issues its reports for free. In a report released December 12, 2004, the Center responds to a question posed by Amnesty International on a moratorium on the taser by stating the following: "Even a temporary ban on the issue of Tasers would literally create a catastrophe for peace officers. Lawsuits would increase, officer injuries would increase, and subject injuries would increase-all guaranteed. We need additional research, but we don't need to stop using a unique tool that experience has proven is effective and overwhelmingly safe while more investigation is underway." (Force Science News, Issue #9)

U.S. Department of Defense Human Effects Center of Excellence- An October 2004 report released by the U.S. Department of Defense Human Effects Center of Excellence focused on the effectiveness and risks of the taser. The study concluded that the use of the taser, as intended, will generally be effective in inducing the desired temporary incapacitation effect without presenting a significant risk of unintended severe effects. Although likely to be uncommon, the report indicated that some severe, unintended effects might occur. The study acknowledged that occurrences of in-custody deaths have been reported in conjunction with the use of tasers, but that there are several arguments against any predominant role of the taser in arrest-related deaths. According to the report, as in previous epidemiological reports, deaths were often attributed to illicit drug intoxication in suspects. Furthermore, drug intoxication was associated with in-custody deaths under a number of circumstances, regardless of how the subjects were taken into custody. In the report, contemporary medical opinion supported the view that the drug intoxication itself causes or predisposes one to an underlying vulnerability. The report concludes that the taser is not likely to be the primary causative factor in reported fatalities. It does suggest, as most medical studies state, that more research be conducted on the taser and its interaction with persons on drugs or other sensitive populations.

Potomac Institute for Policy Study- The Potomac Institute for Policy Study is an independent, not-for-profit public policy research institute, which identifies and aggressively shepherds discussion on key science and technology issues facing society. On February 23rd and 24th, 2005, the Potomac Institute for Policy Studies in Arlington VA., hosted a two-day conference entitled "Stun Devices: Uncertainties and Gaps in Knowledge." The purpose of the conference was to bring together experts from various fields including medical and health effects, safety and regulatory issues, policy, and industry practices. The outcome of the study was based on the available evidence during this study. The Potomac Study Group reported that they believe that when stun technology is appropriately applied, it is safe and clearly effective.

The Potomac study also found a philosophy used by the Food and Drug Administration (FDA) to be useful for evaluating the safety and effectiveness of devices such as stun guns. This methodology considers the risk associated with a device relative to its efficacy, and considers no product to be completely devoid of risk. The only known field data that is available suggest that the odds are, at worst, one in one thousand that a stun device would contribute to (and this does not imply "cause") death. They assert that the statistic is likely not different than the odds of death when stun devices are not used, but multiple force applications are.

Challenges to Consider

Research findings cite lack of taser technology regulations, a physical/health condition known as *Excited Delirium*; and opposing human service organizations as potential obstacles to successful implementation of taser technology.

Lack of Taser Regulations- Related to management and oversight of taser usage within a department, it must be noted that no federal regulative body has asserted oversight of current less-than-lethal stun technology. No regulating body (private or public) has established industry standards, restrictions or guidelines -- nor for importation from foreign suppliers. As a result, there is minimal guidance for public and private management.

In addition, due to the fact that law enforcement agencies are managed at the local level, placement of stun devices on the force continuum may vary amongst organizations. Although some organizations offer exemplary use of force rules, there are no universally agreed upon matching of tactics (use of force) with threatening behavior.

Lastly, the Consumer Products Safety Commission conducted the last and only federal regulatory review of stun device safety in 1976. The technology evaluated at that time was found not likely to be lethal in normal healthy adults.

Excited Delirium- Current research cautions administrators and front-line officers about the possible link between multiple taser applications and death involving subjects with symptoms of *Excited Delirium* (ED) - a drastic disturbance in a subject's behavior caused by the persistent abuse of drugs, usually cocaine. ED is formally defined as "a state of extreme mental and physiological excitement, characterized by extreme agitation, hyperthermia, euphoria, hostility, exceptional strength and endurance without apparent fatigue". Potential causes include head trauma, fever, adverse reactions to medications, alcohol abuse, or overdose on illegal drugs such as cocaine, heroin, etc. However the onset occurs, the condition, while relatively rare, is always high risk.

According to mental health archives excited delirium is very hard to diagnose because of the place where it is most likely to begin - at the police station. An extreme form of behavioral disturbance that goes far beyond the "distressed" state that police normally face, the behavior may be well underway prior to the officers' arrival or it may explode during a normal interview or questioning. A person in an excited delirium state will try to free him/herself, and become increasingly more aggressive and confrontational. As officers try to gain physical control of the affected subject, it may take several officers to overcome the subject's strength, endurance, and immunity to pain. In instances of ED, it is recommended that the taser not be used in the hope of gaining compliance, but to create a window of disablement during which officers can establish physical control of the subject.

Studies also note that ED symptoms can occur during an aggressive arrest whether a taser is used or not. Research suggests that a person, who fights aggressively and has alcohol or drugs in his /her system, will increase their chance of excited delirium occurring within their bodies.

Any person who exhibits symptoms of ED requires prompt medical evaluation and treatment.

Opposing Organizations- There are several reputable organizations that oppose the utilization of tasers including The American Civil Liberties Union (ACLU), the Southern Christian Leadership Conference (SCLC) and Amnesty International. Amnesty International has undertaken the most critical review on the use of taser technology. The 2005 Potomac Study also looked at the groups opposing taser technology. At the time of the study, Amnesty International wanted a ban and suspension on the use and manufacturing of equipment whose primary use is torture or ill-treatment. In November, 2005, the Southern Christian Leadership Conference had a rally in Lawrenceville, GA to protest what they believed to be police brutality and the rising deaths across the nation related to taser gun use. While the SCLC appreciates the job that law enforcement agencies perform and acknowledges that alternatives to taser gun use often involves deadly force, their philosophy of non-violence dictates they must speak out against what they see as a violation of human rights. The American Civil Liberties Union often cites safety concerns following any fatal incident involving the use of taser technology. The ACLU is not advocating a ban on tasers, it is recommending that policies be adopted that are specifically aimed at minimizing the possibility that a suspect might die.

Conclusions and Recommendations

In the furtherance of DPD's mission to protect life and property of Durham citizens, it is the stance of department administrators that officers should have every proven and reasonable tool at their disposal. Tasers, thus far, have proven to be a reliable less-than-lethal use-of-force option that has demonstrated the added value of reducing incidents of physical confrontations between officers and those who refuse to obey officers' lawful commands. In addition, tasers have reduced the sometimes serious and long-term injuries suffered by officers and suspects involved in physical confrontations.

Taking into careful consideration both the cited benefits and challenges of taser technology, it is recommended that taser technology be added to DPD's arsenal and use-of-force continuum. The following three strategies are also recommended to help ensure a successful implementation process:

1. To develop and implement a community awareness campaign to communicate factual information about taser technology; to convey the department's primary goal of enhancing the safety of both officers and subjects; and to directly address and respond to concerns and misinformation citizens may have about taser technology. The department will invite a supplier of taser technology to the department and allow members of the community to view the tool and ask the experts about the technology. Partners Against Crimes members will be invited as well as other community organizations.
2. To structure the implementation process using a *phase-in* approach (occurring over multiple fiscal years) to accommodate budgetary and administrative limitations of the department. The department will purchase one hundred taser in the first phase and 95% will be distributed to frontline personnel. The remaining 5% will be distributed among specialized units, specifically the Special Operations Division.
3. To follow DPD's tradition of exemplary Basic Law Enforcement Training (BLET) - providing significantly more training hours beyond what is required by the North Carolina Justice Academy. As there is no universally agreed upon use-of-force continuum among law enforcement agencies, exceptional training will be mandated to foster some consistency and understanding of what is considered to be an acceptable utilization of taser technology.

Attachment 1: What is a Taser?

The name TASER is an acronym for “**Thomas A. Swift’s Electric Rifle**”. It was invented by Jack Cover in 1969 and named for the science fiction teenage inventor and adventurer character Thomas Swift. The majority of the police departments in this country use the device that was designed by TASER International, the most widely recognized distributor. The TASER has been available to law enforcement since 1974. In-fact this agency had a Taser gun in the 80’s. Our records show we purchased a stun gun device from Tasertron, not associated with TASER International, in Yucaipa, Ca. We were unable to determine why we never renewed or continued updating the Taser as technology improved. The last record of known purchase of replacement parts for the device was in 1993. It is also worth noting that the Tasertron, which is no longer manufactured, was classified by the Federal Bureau of Alcohol, Tobacco, Firearms and Explosives as a because it used black powder for its propellant. The TASER is not classified as firearm because it uses compressed nitrogen gas as the propellant.

The Taser is sometimes called a conducted electrical weapon (CEW), conducted energy device (CED), electro-muscular disruption technology (EMDT) or electronic impulse device (EID). For this report we will refer to it as TASER. It is a conducted electrical device deemed less-than-lethal on the use of force continuum. It is used to control an uncooperative subject when the use of deadly force is not a primary option. When it is used, it causes an electro–physical, involuntary contraction of skeletal muscle tissue. It overrides the motor nervous system and blocks the command and control of the human body. Basically the person experiences skeletal muscle “lock-up”. It is then impossible for the person to voluntarily control their actions or movements. This device directly stimulates motor nerve tissue, causing incapacitation regardless of mental focus, training, size, or drug-induced dementia. This incapacitation is done after two metallic darts are discharged from the device. Each dart has a small barb on the tip to aid in the adherence to a person’s skin or clothing. The darts remain connected to the handheld device by way of insulated wires. Once discharged the device generates an electrical current that is carried through the wires to the darts. The darts and the wires complete an electrical circuit (one positive, one negative). This connectivity then causes the person to become incapacitated for five seconds. The operator has the option of generating an additional burst of current if needed to gain compliance. The agency will have policies and procedures as to the necessity of additional bursts of electrical current to an individual. The new general order that is being written will allow for a multiple bursts from one officer, but not allow multiple tasing by multiple officers.

A primary concern is the amount of electricity that is entering the persons body and if it will affect a pacemaker or the heart. Voltage describes the electromotive force used to cause electrical current to flow; current describes the flow of electricity. Joules describes the total amount of energy delivered by 1 watt of power in 1 second. The threshold in which a cardiac ventricular fibrillation can occur is 10-50 joules; the taser’s joule output, depending on the device model, is 0.36 or 1.76 joules. FDA approved pacemakers must undergo testing that demonstrate they can withstand current delivered from an emergency defibrillator. The TASER system delivers substantially lower levels of energy than the emergency defibrillator which can deliver up to 400 joules. The information reviewed for the amount of electricity or energy has always been the same throughout the research.