

**ATTN:**

**Honourable Thomas R. Braidwood, QC  
Braidwood Commissions of Inquiry**

**RE:** Automated and Remote Applications of Taser Weaponry

**NB:** Honoured Sir,

Thank you for your consideration of my statement, questions and attached Schedule A & Schedule B (12 pages in total).

Sincerely and with great concern,

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**PREFACE:**

A hand held Taser unit allows the operator full control of the Taser aiming, firing and duration of electrical discharge at all stages of the weapons operation.

Taser International is currently marketing Taser force systems with electronic triggering systems. (see information and internet links in attached Schedule A) These include:

- Taser Extended Range Electronic Projectile(XREP): “Fire and forget” Taser Shotgun shells
- Taser Shockwave: Banks of remote or sensor activated Taser “scatterguns”
- Taser / iRobot “Packhorse”: Remote control robot mounted Taser weapon with autonomous capability ( Taser has recently hidden this information on its website )

In these products there are either limited or no means for active human participation in the activation and deactivation of the electrical pulse.

- **This replaces some or all of the trained operator's decisions with those of a computer operated machine.**
- **The operator may not be immediately present in the area of the Taser discharge.**

Agencies in BC may be receiving sales solicitations, planning to use, in possession of, deploying or actively using such devices. Possible deployment and use scenarios are detailed in attached Schedule B

## **STATEMENT:**

As a person who has been professionally involved in high-tech development for many years, the trends and risks of this type of automated or semi-automated technology are of grave concern to me. Primarily, though not solely, due to the decision regarding the application and quantity of force used may be determined not by trained personnel, but by a machine.

The advance of these technologies is far faster than might generally be realized. Electronic triggering systems categorize as:

- Remotely Operated (a human operator at a distance)
- Autonomous (self operating by embedded computer circuitry, sensors and programming)
- Semi-Autonomous (a combination of the 2 former types).

Each of these technologies has been demonstrated by Taser International and those not in full production are currently being field tested with full availability in 2008.

Security budgets and operational “enthusiasm” related to large scale BC events such as the 2010 Olympics may lead (and may have already led) to investigation, training, purchase, deployment and active use of these new technologies in BC.

Under the cloak of “security” public scrutiny and process relating to these purchases and the important question of the appropriateness of computer controlled force application may, against the public interest, be ignored.

This creates a slippery slope of integrating potentially dangerous and ungoverned new technologies and techniques, including, though not limited to, long term purchase and support contracts relating to these remote, autonomous and semi-autonomous products by BC institutions.

I ask the commission to include in its inquiry, a thorough investigation of all forms of automated Taser technologies at all stages of their potential and actual inclusion into our provincial institutions. This would include a review on use of force guidelines and oversight relating to application of these particular technologies.

## **QUESTIONS:**

In keeping the public interest at pace with changing technology, my questions to the commission are:

- 1) Have any relevant administrations, officials and officers been receiving sales solicitations, demonstrations, sample units or training using any of these or other types of electronic triggering systems?
- 2) Have purchases of any lethal or non-lethal remote, autonomous or semi-autonomous triggering systems been scheduled or completed by provincial agencies?
- 3) Have any remote, autonomous or semi-autonomous triggering systems been deployed into training and/or active use?

## QUESTIONS (continued) :

- 4) Have any remote, autonomous or semi-autonomous triggering systems been activated (used) against persons in British Columbia?
- 5) Does it not set an extremely dangerous precedent to consider allowing “military grade” robot/computer operated weaponry of any kind into our civilian infrastructures irrespective of the nature of the force the robot/computer applies?
- 6) Are there any clear and strict laws or policies prohibiting the use of remote or autonomous electronically activated weapon systems in the civilian domain?
- 7) In the possible absence of a sophisticated, publicly debated, or tried and tested policy in this area, is it not in-appropriate and premature for any discussions, decisions and sales demonstrations regarding purchases and deployments of such weaponry until such policies and processes are completed?
- 8) Given the anonymity of a faceless remotely operated or autonomous machine, how is any person, civilian or official, to identify or hold accountable the operator or activator of such machines? ( Even currently, with operation of hand held Tasers, there are anecdotal accounts of abuse of Taser weapons. )
- 9) Is there current policy and rules governing force application for these new and complex triggering systems? In some configurations, Taser equipment requires **no human operator**, and in other cases it removes the capability for the human operator to participate in each and every stage of using the weapon system, and yet other cases where the human operator is physically distant from the operation of the Taser weapon, leaving a potential victim helpless should physical positioning support or medical intervention and aid be required. Furthermore, an Automatic “re-energize” feature must be actively turned OFF to cease automatic repeated Taser pulses.
- 10) Given the apparent possible risk of lethality with a completely human controlled Taser weapon discharge, where the operator is in direct attendance and capable of actively controlling the device at every step of its application, is it not far riskier and therefore, irresponsibly premature to consider use of technologies which further remove the human operator from the correct application of force and the immediate physical area of use of the Taser weapon?
- 11) In the case of the self-activation of an autonomous machine, who would hold the liability were there a negative outcome (victim)? Is there an established infrastructure in place regarding such potential liabilities? Is this type of use justified for the public to hold such liability?
- 12) In the case of remote or self-activation of an autonomous system, how is there a guarantee that a capable official will be notified and/or able to attend the site of the weapon discharge under all circumstances, 24/7 365.
- 13) Are any provincial institutions using or considering use of the standard or armed iRobot Packhorse?
- 14) The iRobot Packhorse requires only a minor upgrade to arm it with a Taser weapon. Are there any plans to do so with any of the robotic devices the province may now have or be acquiring?

## **SCHEDULE A: (1/3)**

### **Taser XREP - Shotgun Shells**

**Description:**

A 12 gauge shotgun shell containing an autonomous Taser discharge system. Fired from a 12 gauge shotgun, this projectile projects blunt force and multiple penetrating barbs that deliver the electric discharge.

The electrical discharge is governed by an on board microprocessor with no control options by the operator.

According to Taser International this is “The most technologically advanced projectile ever deployed from a 12-gauge shotgun.”

**Triggering:**

Autonomous application of electrical force for full 20 second duty cycle once fired

**Product Information:**

<http://www.taser.com/PRODUCTS/LAW/Pages/XREP.aspx>

**XREP Videos:**

<http://www.taser.com/pages/VideoDetails.aspx?videoid=56>

<http://authoring.taser.com/pages/VideoDetails.aspx?videoid=61>

## **SCHEDULE A: (2/3)**

### **Taser SHOCKWAVE - Area “scattergun” system**

#### **Description:**

- A “Remote Area Denial System”.
- An untargeted device, relying on area coverage rather than target selection.
- Multiple Banks of 6 interlinked 25' tether Taser cartridges which may be configured and triggered remotely, individually or enmasse.
- Activating a “re-energize button” applies 5 second discharges continuously to keep “previously targeted personnel down and incapacitated”

#### **Triggering:**

Remote Triggering

Automatic full duty cycle application of Taser discharge

Autonomous re-application of electrical force until manually turned off

#### **Comments:**

It seems likely that in real world institutional use, the remote trigger may be connected to motion or other sensors for fully automated operation.

#### **Product Information:**

<http://www.taser.com/products/military/Pages/TASERShockwave.aspx>

#### **Shockwave Video:**

<http://www.taser.com/Pages/VideoDetails.aspx?videoid=60>

## **SCHEDULE A: (3/3)**

### **Taser X26 mounted on iROBOT Packhorse robot**

#### **Description:**

- An integration of two existing technologies built by iRobot and Taser International
- Taser weaponry mounted on a remotely operated robotic platform (iRobot Packhorse)
- A possible configuration of autonomous remote operation and triggering using the existing robotic platform

#### **Triggering:**

- Remote operation and triggering
- Autonomous re-application of electrical force until manually turned off, per Taser Shockwave operation a likely feature.

#### **Comments:**

The robot's camera sensor package can be used as a motion sensor for possible autonomous triggering.

Provincial institutions may already have the base robotic platform (iRobot Packhorse). Adding the Taser weapon to the robot may be as simple as a bolt-on upgrade.

Policy relating to and operation of robot weapons is a significant issue with far reaching ramifications.

Information and Video relating to this device has been removed from Tasers website, but is broadly available through the public media announcements Taser International and iRobot made.

#### **Product Information:**

<http://www.cbc.ca/technology/story/2007/06/29/tech-irobot.htm>

[http://www.popularmechanics.com/blogs/technology\\_news/4219071.html](http://www.popularmechanics.com/blogs/technology_news/4219071.html)

<http://www.google.ca/search?hl=en&safe=off&q=taser+irobot&btnG=Search&meta=>

#### **Taser Robot Video:**

The original video from the Taser International website

(<http://www.taser.com/pages/VideoDetails.aspx?videoid=57>) is unavailable, but can be found archived on Youtube. (unfortunately no sound)

<http://www.youtube.com/watch?v=DxpC4KtV2g4>

## **SCHEDULE B: (1/6)**

**The following usage scenarios detail possible use and potential risks of remote and electronically triggered Taser weapons:**

### **Taser XREP - Shotgun Shells**

#### **Scenario:**

A Police or Prison standoff where a hostage is held:

Since there is an innocent hostage involved, non lethal force is chosen.

The distances involved are greater than the operational range of a hand held Taser.

The decision to use Taser XREP launched from a 12 gauge shotgun is made.

The weapon is fired and the Taser round successfully discharges upon the target.

The forces begin entry to the area of the hostage taking.

The process of entering and securing the area takes a little time.

#### **Possible Negative Outcomes:**

- When the scene of the hostage taking is finally physically held by the officers, it is found that the victim has encountered some form of medical difficulty.
  - This could be from falling in such a way to obstruct the airway.
  - A cardiac arrest issue as has been seen in other Taser discharge situations of an agitated suspect.
  - The blunt force impact and/or barbs have seriously injured the target.

#### **Risks:**

- 1) The XREP round discharges autonomously, controlled by micro-circuitry, until its cycle is complete without the possibility of intervention by the officers using it.
- 2) The XREP round cannot physically be removed until the cycle is complete due to the design, causing any who touch it to be shocked.
- 3) The XREP round may be contacted by others in the vicinity, causing non-targeted persons to be affected.
- 4) The distance from the victim and/or physical obstructions prevent timely aid being offered.
- 5) Certain areas of the body are susceptible to serious injury from blunt force impacts
- 6) Certain areas of the body are susceptible to serious injury from the barbs impacting at such velocities.

## **SCHEDULE B: (2/6)**

### **Taser Shockwave - Remote Area Denial System**

#### **Scenario A:**

A prison installs the Taser Shockwave in a confined area to prevent or stall escape attempts.

Camera or motion sensors are triggered by people in the confined area.

A security officer monitoring the facility from a central location is alerted.

The officer activates the Taser Shockwave system and person(s) in the confined area are incapacitated by the Taser system.

The officer now alerts other officers to immediately attend the area of the discharge.

Since this will take a little time, the officer activates the “re-energize” feature where discharges are repeatedly sent to the already targeted and incapacitated person(s).

#### **Possible Negative Outcomes:**

- When the scene of the discharge is finally attended by the officers, it is found that the victim has encountered some form of medical difficulty.
  - The target(s) fell in such a way to obstruct the airway.
  - A cardiac arrest issue has occurred as has been seen in other Taser discharge situations of an agitated suspect.
  - Barbs from multiple Taser units hit one target, increasing other risks.
  - The scattergun barbs hit target(s) in areas of the body where serious injury may occur from barb impact, such as eyes or mouth.
  - The discharges repeat over a possibly protracted period of time while officers attended, increasing any possible medical risk.
- Attending officers intentionally delay their arrival in order to inflict pain on the target(s), thereby causing harm without action. This may also increase medical risks.
- Officers arrive, but through communications issues with the security officer are unable to get the automatic discharges to stop firing so that they can apprehend the target(s) without being shocked themselves.

#### **Risks:**

- 1) The distance from the target prevented timely aid being offered.
- 2) The system is un-targeted and relies on multiple discharges to make positive “hits”.
- 3) The system automatically operates a full Taser discharge cycle.
- 4) Automatic discharges may be used passively by persons as an abuse/torture technique.
- 5) Automatic discharges may continue beyond the time desired by attending officers.

## **SCHEDULE B: (3/6)**

### **Taser Shockwave - Remote Area Denial System**

#### **Scenario B:**

A prison installs the Taser Shockwave.

A design decision is made to connect a motion sensor directly to the trigger of the device. The device will then be automatically triggered should persons enter the restricted area.

An alarm is installed in a central security monitoring station to alert security officers of the automatic discharge.

The device discharges automatically due to movement in the restricted area.

#### **Possible Negative Outcomes:**

##### **In addition to all the outcomes detailed in Taser Shockwave Scenario A,**

- A maintenance worker or officer performing duties was hit by the system.
- Through any means, procedural or mechanical, the security officer misses the alert that the Taser Shockwave has activated.
- The targets are left alone for a long period of time, being continuously incapacitated by the “re-energize” feature.

#### **Risks:**

##### **In addition to all the risks detailed in Taser Shockwave Scenario A,**

- 1) Automated activation prevented decisions by a human
- 2) A human may not be aware of activation
- 3) A target may be left unattended for long periods of time
- 4) A target may be injured by continuous application of Taser discharges over a long time

## **SCHEDULE B: (4/6)**

### **Taser X26 Mounted on iROBOT Packhorse Robot**

#### **Scenario A:**

A Police or Prison standoff where a hostage is held inside a building

A Taser armed iRobot Packhorse is deployed by remote control to enter the building.

The remote operator fires the Taser weapon incapacitating the target.

The Taser is set to “re-energize” to keep the target incapacitated until an entry team can attend.

The process of entering and securing and finding the area of the discharge takes a little time.

#### **Possible Negative Outcomes:**

- When the scene of the hostage taking is finally physically held by the officers, it is found that the victim has encountered some form of medical difficulty.
  - This could be from falling in such a way to obstruct the airway.
  - A cardiac arrest issue as has been seen in other Taser discharge situations of an agitated suspect.
  - Through the limits of the remote interface, the Taser was inappropriately targeted causing serious injury.
  
- Through the limits of the remote interface, the operator mistakenly targeted the wrong individual, subjecting them, and the entry team to further risk from the perpetrator.

#### **Risks:**

- 1) The distance from the victim and/or physical obstructions prevent timely aid being offered.
- 2) The remote interface seriously limits the perceptions of the operator and therefore appropriate decisions regarding Taser use.
- 3) Remote operation renders the operator of the remote device anonymous and not able to be identified by those at the scene of discharge, contrary to public and/or institutional interest.
- 4) The anonymity of the operator may be used to abuse the appropriate use of Taser discharge.

## **SCHEDULE B: (5/6)**

### **Taser X26 Mounted on iROBOT Packhorse Robot**

#### **Scenario B:**

A Public Protest where barricades are set up. Riot Police are deployed and tear gas has been used. Agitated Protesters are being held beyond riot police lines with tear gas.

Certain individuals are identified as targets and a Taser armed iRobot Packhorse is deployed to incapacitate them.

The remote operator approaches the individuals stealthily with the robot.

The remote operator fires the Taser weapon incapacitating the target.

The Taser is set to “re-energize” to keep the target incapacitated until riot squad members can attend.

The process of finding and securing the area of the discharge in the melee takes a little time.

#### **Possible Negative Outcomes:**

- When the scene of the discharge is finally physically held by the officers, it is found that the victim has encountered some form of medical difficulty.
  - This could be from falling in such a way to obstruct the airway.
  - A cardiac arrest issue as has been seen in other Taser discharge situations of an agitated suspect.
  - Through the limits of the remote interface, the Taser was inappropriately targeted causing serious injury.
- Through the limits of the remote interface, the operator mistakenly targeted the wrong individual
- It is found later that this was an inappropriate use of force; however, due to multiple Taser Robots being used on that day, the operator responsible was not able to be identified by complainants. Due to the time that has passed, any electronic footage from the robot has been conveniently erased.

#### **Risks:**

- 1) The distance from the victim and/or physical obstructions prevent timely aid being offered.
- 2) The remote interface seriously limits the perceptions of the operator and therefore appropriate decisions regarding Taser use.
- 3) Remote operation renders the operator of the remote device anonymous and not able to be identified by those at the scene of discharge, contrary to public and/or institutional interest.
- 4) The anonymity of the operator may be used to abuse the appropriate use of Taser discharge.

## **SCHEDULE B: (6/6)**

### **Taser X26 Mounted on iROBOT Packhorse Robot**

#### **Scenario C:**

The iRobot Packhorse as a platform lends itself to use as an autonomous device, both as a motion sensor using its camera, and in use with a remote computer operating the device rather than an operator.

The robot is placed in a “Sentry” mode where the Taser will discharge automatically based on motion sensor input.

#### **Possible Negative Outcomes:**

- All negative outcomes from Schedule B: Taser Shockwave Scenarios A & B apply.
- All negative outcomes from Schedule B: Taser X26 Mounted on iROBOT Packhorse Robot, Scenarios A & B apply.

#### **Risks:**

- 1) All risks from Schedule B: Taser Shockwave Scenarios A & B apply.
- 2) All risks from Schedule B: Taser X26 Mounted on iROBOT Packhorse Robot, Scenarios A & B apply.