SB353 Microstamping
The Looney Bill

March 16,2009

We are gathered here this morning wasting time and valuable man hours during the State's biggest financial crisis in memory, because you are incapable of doing the job you were elected to do. You were not even considerate enough to hold this hearing at time when most of the people testifying on both sides of the issue are out of work, thereby causing employers across the State to loose countless man hours of productivity.

Senator Martin Loony and some members of this committee, do not like firearms. They dislike firearms so much that they are willing to use any excuse to deny the citizens of Connecticut their right to bear arms and to pass their firearms on to their descendents. Many of these firearms are of great historical value, valuable antiques or custom made firearms that are of substantial value. Is the State going to reimburse the heirs for their loss at fair market value? There is a constitutional requirement to compensate for seized property.

The Looney Bill would force manufactures of firearms to adopt an unproven technology that several studies show is unreliable and of limited or useless value to police and prosecutors. It should also be noted that the BATFE can already trace any firearm made since 1968 from its manufacturer to its last legal owner in 24 hours. In actuality, the Loony Bill is an attempt over a period of time, to seize as many legally owned firearms as possible from the citizens of Connecticut. I strongly point out legally owned firearms. This bill does nothing to prevent criminals from using or obtaining firearms.

I have attached the results of two studies into the reliability of Microstamping that show it does not live up to the hype being spouted by its proponents. These studies were done by the Suffolk County Crime Lab, Suffolk NY and the University Of California Davis. In addition to the failure to live up to the hype, there is the problem of criminals seeding a crime scene with shell casings taken from shooting ranges. This could lead to innocent persons being injured or killed by police who are raiding homes in search of a suspect. Ironically, Microstamping could lead to hours of wasted police effort as they track innocent persons down.

In conclusion, the Loony Bill does nothing to prevent crime, deprives citizens and their heirs of the right to bear arms and may actually impede the police and prosecutors from properly doing their jobs. The Looney Bill should have been killed in this committee.

Thank You,

Joseph G. Knott Jr.

[edit] Manufacturer Testing

Studies conducted by the developers of the technology, including a 2,500 round stress test resulted in a legible transfer rate of 100% (note that the service life of a typical military or police handgun is an order of magnitude higher[7][8][9][10]). In addition, the technology includes stamps on the breech face and residual markings that extend the functional length of the firing pin. Even when the microstamp is removed, and this requires technical knowledge of the stamp and firearms and the use of power tools or diamond sandpaper, the breech face and the residual marks are still transferred and identifiable.[1]

[edit] Suffolk County Crime Laboratory

George G. Krivosta, of the Suffolk County Crime Laboratory in New York, investigated the firearm microstamping technology offered by NanoTag. His basic thesis for this experiment states: "The science of Forensic Firearm and Toolmark Examination relies on the use of highly trained and skilled individuals to identify & compare accidental markings left on expended ammunition components. To circumvent the need for these individuals, it has long been suggested to rely on manufacturer-generated unique characteristics that would be transferred onto the expended components."[11] The owner of microstamping technology claims "markings will be readily identifiable *at the crime scene* ... with 100% reliability, with little or no training of the analyst needed..."[11].

In his research, using tagged firing pins in a .22 Long Rifle rifle and a .45 ACP pistol, he found that very few firing pin strikes actually resulted in legible marks, as it was very common for the firing pin to bounce on impact and strike the case more than once, with successive strikes landing slightly off of the original position and obscuring the original strike impression. Out of the first 100 rounds fired using an 8 character alphanumeric code, 54 provided satisfactory markings, while the remaining 46 had at least one illegible character. Smaller print, encoding the make, model, and serial number for a total of 45 characters, resulting in far less clear markings which were difficult to decipher even under ideal circumstances. Subsequent testing was done only with the 8 character coded pin.[11]

The remaining testing was done using 10 different M1911 pistols of various make and age, with the test firing pin being moved from pistol to pistol as groups were fired with standard military type .45 ACP ball ammunition. After each 100 rounds was fired, the pin was removed from the pistol, examined, and placed in the next pistol. After 1000 rounds were fired, the markings on the pin were still readable, though the markings were beginning to soften under the repeated impacts of firing.[11]

The last test involved an intentional defacement of the markings on the pin. The pin was removed (a simple operation taking a few seconds on the M1911), chucked in a power drill, spun, and held against a knife sharpening stone for about 10 seconds. Examination of the pin showed some marking remaining at the very center of the firing pin, so the pin was wiped against the stone three times by hand, which removed all traces of the engraving. The tip was of the pin was then rounded to remove any sharp edges, placed back in the pistol, and fired with 10 rounds. No malfunctions were observed.[11]

The study found that the ratio of unsatisfactory markings, where at least one of the 8 characters was not readable under a microscope, was 46%. It also questioned the validity of a number of alternative the marking techniques, designed to go on other areas of the

firearm:

- Headstamps could interfere with case head markings other than on the firing pin
- Low pressure rimfire cartridges are unlikely to pick up breechface markings
- Recoil operated designs using the Browning tilting barrel (the majority of recoil operated handguns made) would cause shearing marks on the case head markings, as would gas operated designs (rare in handguns, but common in rifles) using a rotating bolt.
- Some marking locations shown in the NanoTag marketing literature showed marks on the extractor and ejector in areas that never come into contact with the ammunition.
- Chamber markings would need to be placed deep in the chamber, and would be subject to shearing under extraction[11]

A side by side comparison done by NanoMark in response to Krivosta's findings is available for review. [1] [12]

[edit] University of California, Davis

The UC Davis study was performed by graduate student Michael Beddow under the supervision of David Howitt, a professor of chemical engineering and materials science, and chair of the Graduate Group in Forensic Science at the university. The test involved engraving firing pins from six brands of semiautomatic handguns, two semiautomatic rifles and a shotgun. The firing pins were engraved with an alphanumeric code on the face of the firing pin, a pattern of dots or gears around the pin, and a radial bar code on the side of the pin, a process recommended by ID Dynamics to make the markings more robust.[13]

The wear testing was done with six Smith & Wesson .40 S&W pistols used by California Highway Patrol cadets in training, who fired approximately 2,500 rounds through each pistol. The alphanumeric codes on the firing pin faces were still legible, but showed signs of wear, while the dot and bar codes were "hammered flat", according to Beddow.[13]

Other firearms tested inlucded .22 Long Rifle and .380 ACP handguns in addition to the rifles and shotgun, and a wide range of results were attained. In general, the alphanumeric and gear codes transferred well, but the barcodes showed significant visual degradation, though due to lack of information on reading the codes, mechanical reading was not attempted.[13]

Beddow found that the codes on face of the pin could easily be removed with household tools. The estimated cost of engraving the pins was US$8 for each pin the first year, and US$2 per pin from that point on.[13]

A side by side comparison done by NanoMark in response to the UC Davis Study is available for review.[2] [14]

[edit] Update on UC Davis study

The study by UC Davis was peer reviewed by three independent researchers, updated, and was re-released in May, 2008. The revised report concluded "At the present time, therefore, because its forensic potential has yet been fully assessed, a mandate for the implementation of this technology in all semiautomatic handguns sold in the state of California is counter-indicated. Further testing, analysis, and evaluation are required."

The study also called into study the pricing estimates given by the manufacturer and the usefulness of the serial number information in solving gang shootings.[19][20]
In rebuttal to the claims that the study used outdated firearms, the firearms in the study were chosen to provide a broad range of calibers and action types. Some of the firearms, such as the Smith & Wesson 4006 and Sig Sauer P-229 used by the California Highway Patrol, are current issue and were purchased new; others included the Colt M1911 design, which is still in production after nearly a century, the Ruger MKI, the Mossberg 500, and the Colt AR-15, all very common, established designs, still in production with minimal changes over the lifetime of the design.[19]

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^ Sections 12090 and 12094 of the California Penal Code CA Penal Code
^ US Title 18 Chapter 44 Section 921 and 922(k) US Penal Code
^ Cal. P.C. § 12125(b)(4)