



C23 Forensic Engineering Analysis of TASER™ Issues and Safety Warnings

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The learning objective is to recognize the roles AAFS can play in affecting difficult and sometimes controversial issues, in this case the TASER electric shock device. The desired outcome is a greater respect for the responsibilities of forensic practitioners in presenting objective and researched data, and the appreciation that AAFS can have a positive effect on safety issues.

At the February 2005 annual meeting of the American Academy of Forensic Sciences, a guest speaker presented paper C27 entitled "Lethality of TASER Weapons," in the Engineering Sciences Section's portion of the scientific session. The talk was basically a recap of the speaker's opinions delivered previously in a case involving a death in police custody following use of a TASER® brand weapon. The speaker made assertions about the lethality of the TASER, cited numbers of "TASER related in-custody deaths" ranging from 50 to 100 or more, numbers attributed to the news media, the American Civil Liberties Union and Amnesty International. He also referenced standards that in his opinion were applicable with regard to cardiac arrhythmia, electric shock, and electrocutions. The presentation drew a large audience, far above the usual ESS norm. Clearly this topic engaged members from many sections of AAFS, including Criminalistics, Pathology-Biology, Jurisprudence, and Engineering among others. At its conclusion, there were several questions from the audience, but time was cut short, leaving several people without answers to serious assertions made, to the effect that the speaker had mis-stated and misrepresented the facts.

It occurred to the writer that this was somewhat unusual in ESS pre-sentations, in that a fair opportunity to challenge the speaker was not afforded.

As a result of the attention the TASER paper received, this writer became intrigued by the notoriety of the product and the confusion that attended the presentation. As a result, this writer undertook an independent investigation of electric shock devices (ESDs), and in particular, the dominant product of this genre, the TASER. This included a trip to the TASER facility, and voluntarily experiencing the TASER first hand. The findings of this investigation were presented at a meeting of the National Academy of Forensic Sciences, in Chicago, July 10, 2005, in a paper entitled "Forensic Engineering Analysis of TASER Product Liability Issues" which included an analysis of ESDs and the environments in which ESDs were used, and addressed the question of how safety standards and concepts apply to these products.

In this analysis the ESD product may be seen differently from the consumer and law enforcement perspectives, respectively. This is related to the genesis of safety culture in MIL-STD 882, the basis of System Safety Engineering. MIL-STD 882 has had a profound influence on both the Consumer Product Safety Commission (CPSC), and consumer-product liability analysis. This framework was used to drive the present writer's analysis of the TASER and its environment of use.

Among the topics addressed was the widespread but statistically inappropriate reporting by the news media as well as the ACLU and AI, given the reality of the record. It was pointed out that the issue of In Custody Deaths (ICDs) has been muddled into the TASER picture, and that many factors that must be considered to discriminate reality in the existing very confounded data set. The modeling of the overall law enforcement system and the many interactions that go into determining its effectiveness was a part of this presentation. In the present talk, key elements of this earlier pre-sentation will be referenced for discussion and completeness.

After the presentation at the National Academy of Forensic Engineering meeting, this writer was approached by a representative of TASER International, and retained to repeat the presentation to its staff. This interaction has resulted in an unexpected and professionally gratifying result. TASER International has now undertaken a complete review and updating of all of its safety literature and products, and is now differentiating between the consumer and law enforcement markets. The important aspect of this development is that the manufacturer has pro-actively adopted significant aspects of this investigation to restructure and effectively present the necessary safety information. This information and warnings are now available to the consumer, law enforcement, volunteer, and training functions in a uniform, coherent manner, conforming to accepted standards.

In summary:

- a) The safety culture at TASER International was changed
- b) Safety, Technical, Training, and Marketing topics were separated to eliminate incorrect impressions, and to emphasize Safety
- c) A warning pictograph was developed for ESDs
- d) All packaging was changed to implement prominent warnings
- e) All sales literature was revamped to emphasize warnings
- f) Warnings were incorporated onto the product
- g) All website information was changed to present safety first, then all other information
- h) All purchasers must agree to the safety conditions of sale
- i) All training literature was changed to emphasize safety
- j) The company adopted a structured comprehensive approach to safety based on the definitions of safety



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from safety engineering sources, including MIL-STD 882, CPSC, product liability practice, and DOD and FDA interpretations.

In this AAFS presentation details of the effort will be presented, including the organizational, technical, and legal issues that had to be addressed in this process. The process has also closed the circle, by creating a panel of TASER presentations at the Seattle AAFS 2006 meeting, offering an opportunity for all sides of the issue to be addressed.

TASER, ECD, Warnings