SUMMATION OF EXPERT TESTIMONY PERTAINING TO SHOOTING TRAJECTORY ANALYSIS REPORT- ATF LABORATORY #09N0120

Gregory S. Klees, Firearms and Toolmark Examiner, for the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) National Laboratory Center will testify as an expert in the forensic field of Shooting Trajectory Analysis (STA) and to a specific application of STA called Trajectory Mapping (TM). Mr. Klees will also testify to the STA and TM tests conducted at the house located at XXXXXXX in XXXXXX, Pennsylvania, where a reported shooting incident occurred. This testimony will include:

-That the science of STA is the determination of a fired projectile's path of flight into/through a target by studying the physical features produced by the striking or impacting of a projectile. The analysis of a projectile's strike impression to determine its original path of flight or trajectory usually employs the use of measuring devices and mathematical calculations. Additionally, various projection methods can be utilized to visualize and extend the developed trajectory.

-The additional application of TM which is the determination of the corresponding areas or spatial relationships of possible shooter to target interfaces based on the alignment(s) of the developed projectile trajectory.

-As to the STA and TM tests conducted at the XXXXXX house, Mr. Klees will testify, in general terms, to the analytical tests used to develop the trajectory from the target victim's wound track and the use of the physical projection method to better visualize this trajectory. Mr. Klees will testify to the laser projection method which was used to further visualize and extend the developed trajectory in the TM analyses. Mr. Klees will testify that the laser projection method extended the trajectory range so mapping of all logical shooting and target positions, based on conditional parameters presented by witness statements, could reliably be determined.

-Will be prepared to testify as to the reliability of STA as an applied science to include its underlying scientific principles that include the physical laws of motion, as well as long accepted mathematical formulae such as geometric and trigonometric function calculations. This testimony will also include earlier applications of STA concepts in military armament/ordnance ballistics and medical terminal ballistics, as well as more contemporary applications of STA principles in the civil engineering and building industry fields.

Publications detailing the field of STA in general and the specific forensic applications of STA methods in criminal investigations are provided in the attached bibliography.

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