

AFTE Response to the NACDL Task Force on the Future of Forensic Science

Drafted by: AFTE Committee for the Advancement of the Science of Firearm & Toolmark Identification [1], Sent to the NACDL by the Association of Firearm and Tool Mark Examiners Board of Directors, represented by Jim Krylo, President

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ABSTRACT

The purpose of this response, was to comment on the seven areas addressed in the “Preliminary Position Statements and Recommendations as necessary for the Forensic Science System to produce Accurate and Reliable Science, and hence Fair and Accurate Verdicts, in our Courtrooms” adopted by the NACDL November 7, 2009. The seven areas are: 1) central, science based agency; 2) culture of science; 3) research; 4) education; 5) transparency; 6) discovery; and 7) defense resources. After commenting on all of these areas, AFTE expressed the hope that their comments would be seriously considered by NACDL, and expressed confidence that if they are, NACDL would conclude that a well-grounded culture of science pervades the forensic discipline of firearm and toolmark examination and identification.

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The Association of Firearm and Toolmark Examiners (AFTE) appreciates the opportunity that the National Association of Criminal Defense Lawyers (NACDL) has provided for our Association to review and comment on your preliminary response to the February 2009 report of the National Academy of Science – “Strengthening Forensic Science in the United States: A Path Forward”(NAS Report). It is our belief that this form of open dialogue can only benefit and strengthen the pursuit of justice. AFTE’s commitment to improving and strengthening the forensic sciences is well documented. Our Association has previously responded to the NAS Report [2] as well as providing a response to the August 2008 National Academy of Sciences report, “Assessing the Feasibility, Accuracy, and Technical Capability of a National Ballistics Database” [3]. AFTE urges the NACDL to carefully review these two documents. We are confident that your review of these responses will compel you to conclude that a well-grounded culture of science pervades the forensic discipline of Firearm and Toolmark Examination and Identification.

While AFTE applauds the NACDL for leadership in reviewing the NAS Report, we feel that the “Preliminary Position Statements and Recommendations as necessary for the forensic science system to produce accurate and reliable science, and hence fair and accurate verdicts, in our courtrooms,” adopted by NACDL November 7, 2009 has overlooked several key issues that are critical to the fair and proper functioning of the criminal justice system..

In reviewing your document, AFTE wholeheartedly agreed

with many of the recommendations made by the NACDL. However, there are several points for which we wish to either provide information that the NACDL was perhaps unaware of or did not consider during your review.

No. 1 - Central, Science-Based Federal Agency

It is the NACDL’s position that:

The creation of the National Institute for Forensic Science (NIFS) or similar agency is essential “before there can be an attempt at the other important and necessary reforms of the forensic sciences.”

While AFTE has no official position on the propriety of the formation of a central federal forensic agency, it does not agree that it is axiomatic that without it, needed reforms cannot be accomplished. AFTE agrees with the view expressed in an October 2008 Crime Lab Report Editorial “Crime Labs Under Police – Unresolved Issues” where it states that a “culture that is conducive to good science” can be created in any organization, public or private, but that it can be destroyed in any organization as well [4]. Since most forensic laboratories in the United States are administered by law enforcement agencies, training must be provided to the officials at these agencies about how to create and maintain a culture conducive to good science.

The NACDL has recommended that:

“Within the federal scientific agency, a board on accreditation and certification should be established with full authority to accredit and revoke the accreditation of all laboratories and

to certify and de-certify all forensic science examiners. Neither accreditation of laboratories nor certification of examiners should occur until it has been demonstrated that a forensic science discipline or methodology has been validated. Oversight of accreditation and certification programs should be housed outside the forensic disciplines themselves and shall be the sole responsibility of the federal agency or its designate.”

AFTE endorses the on-going efforts of both the American Society of Crime Laboratory Directors (ASCLD) Lab Accreditation program and the Forensic Quality Service International (FQS-I) program. These programs have resulted in raising the level of professionalism in forensic laboratories throughout the United States. Those who have been a part of these programs know that rigorous standards are maintained.

The AFTE Certification program in Firearm, Toolmark and Gunshot Residue Examination and Identification was developed in conjunction with a self-supported public occupational testing firm and has resulted in standards of achievement that help guarantee the accuracy and validity of Firearm and Toolmark Identification [5,6]. The NACDL Preliminary Statement recommends an exemption to certification for those scientists and experts who have specialized knowledge and expertise or conduct research and teach in academic and private institutions, but who do not perform routine laboratory casework (Item 3 under Recommendation 2(b): Certification). These persons are not required to be certified in order to consult with legal professionals and to testify in court based upon their expertise. While AFTE realizes that these persons could not be certified because they would probably lack the required training and experience, we feel that they should be required to perform this consultation or testimony role in an ethical manner.

Unprofessional behavior and/or individuals providing testimony well outside their area of real expertise should be prohibited by NACDL. Transcripts of such non-certified persons who choose to comment on the forensic science enterprise should be maintained in a national database available to any litigant who finds one or more of these individuals listed as an expert witness so that the accuracy and consistency of their testimony can be evaluated by any court or interested person. This database would be maintained in the same manner that the NACDL suggests maintaining testimony of forensic scientists.

The NACDL also has proposed that:

“Proficiency testing is an integral part of the accreditation and certification process and, accordingly, it should be

mandatory. Either on its own and/or in conjunction with designated agencies, the accreditation and certification board should develop proficiency testing that (1) mirrors actual casework, (2) is as difficult as the casework that examiners do, (3) is blind; (4) is well documented; and (5) evolves with the learning of new developments that may affect proficiency. Such proficiency testing programs shall provide a mechanism whereby failure to successfully complete a test shall be reported to the board and made known to those legal professionals who rely on or who have relied upon the examiner’s work, and shall result in a corrective action plan for the forensic science examiner. The board shall have the authority to revoke the accreditation of any laboratory and/or decertify any person where it finds there was a willful failure to accurately report the results of proficiency testing or the lack thereof.”

AFTE has been a strong proponent of proficiency testing for over twenty years. Annual proficiency testing is a requirement in both ASCLD-LAB and FQS-I accredited crime laboratories. These are, when available, prepared and administered by independent companies like Collaborative Testing Service (CTS). While AFTE agrees that these tests could be more representative of casework compared to how most of them are currently prepared and administered, this does not invalidate the utility of these tests. AFTE supports the continued development and refinement of the proficiency testing process in the United States because it is in everyone’s best interest to have proficiency samples that mimic the full range of evidence examined in the forensic laboratory. Additionally, it is important to note that the ASCLD-LAB Proficiency Review Committee provides a mechanism to remediate errors in proficiency tests. This process is taken seriously by all of the participants and has worked well to date. Additionally AFTE endorses and supports all forensic research efforts. The Association has and will continue to actively encourage and fund scientific research in the area of Firearms and Toolmark Identification.

No. 2 - Culture of Science

The NACDL proposes that:

“A culture of science that encourages critical review, precision, independence, openness, objectivity, and uncertainty management must be instilled in forensic science laboratories and facilities, forensic science practitioners, and forensic science students.”

AFTE asserts in the strongest possible way that a culture of science does exist in most forensic laboratories represented by AFTE membership. This assertion is supported by many factors to include:

- The maintenance of AFTE certification requires continuing education and professional development.
- ASCLD-LAB and FQS-I both require technical peer review of casework. Some crime laboratories require this in 100% of cases. Technical peer review is taken seriously; with the peer reviewer expected to “own” the casework examination protocol and results.
- AFTE has a well developed code of ethics and an equally well developed enforcement procedure [7].

AFTE would also suggest that one advantage to having an association with law enforcement is the ability to bring an objective culture of science to crime scene processing. A completely independent forensic laboratory system, with no ties to law enforcement, would probably not be allowed to be among the first responders to crime scenes. Timely crime scene processing is necessary to ensure that the maximum amount of information present at the scene is preserved. A crime scene processed under a culture of science helps ensure that evidence is recognized, documented, and collected in a way that any interested party, prosecutors or defense, stands an equal chance of using it. The goal of such processing is to ensure that all relevant information is developed without regard to who in the judicial system may use it.

Most forensic scientists processing crime scenes, though employed by a law enforcement agency, have the mindset that represents both prosecution and defense. Their goal is to objectively process the scene, with the only benefactor being the justice system. Often, analytical results provide investigative leads that may lead to the detaining of a potential suspect or release of a person who has been arrested. If an analysis is not conducted until an attorney requests it, there is little likelihood any potential suspects would hire or be assigned a defense attorney.

The notion that forensic science laboratories should be completely divested of all ties to law enforcement has the potential to place the justice system in a quandary. One of a forensics laboratory’s most useful services is the rapid relay of information to a law enforcement agency during an investigation, which may help determine if an arrest is made or not made, and, if so, how soon. A law enforcement agency’s ready access to the examination of important evidence, which may implicate or exonerate a potential suspect during an active investigation, often depends on that agency’s working relationship with a particular laboratory. This access may be impeded if the agency has to wait while the evidence is submitted to be examined by a completely non-law enforcement associated laboratory, which may have

competing priorities. Such factors can also have a negative impact on an individual’s due process, as well as public safety, when the freedom of an in-custody suspect depends on the timely processing and analysis of evidence by the laboratory. When a laboratory analysis exonerates someone, that person typically does not enter the court system and will usually not be in contact with a defense attorney or prosecutor, so the potential exists in many of these cases that an attorney never knows of the laboratory work that was done.

No. 3 - Research

The NACDL states the position that:

“Research pertaining to the accuracy, reliability, and validity of forensic science theories and techniques, and their limitations and measures of uncertainty, must be fully funded and carried out immediately by credentialed and qualified scientists at national research institutions.”

It is the position of AFTE that skilled firearm and toolmark examiners are fully capable of conducting valid research and have conducted numerous such research and validation studies that form the foundation of our forensic discipline. This research and information is essential for the criminal justice community. Additionally, AFTE is determined to take steps to make the AFTE Journal more available to non-members so that the important scientific knowledge contained within this peer-reviewed scientific journal can reach the widest possible audience. In furtherance of this goal of making the scientific information gathered by our members more accessible, AFTE adopted documentation standards in 2005 [8] to help bring cohesiveness to this important aspect of forensic casework.

The NACDL expressed concerns with the issue of “bias” within the forensic science community, stating:

“Research into human observer bias and sources of human error in forensic science examinations should be funded and further conducted, including studies of the effects of contextual bias in forensic science practice (e.g., studies to determine whether and to what extent the results of forensic science analyses may be influenced by knowledge regarding the background of the suspect and the investigator’s theory of the case)”.

AFTE supports research into minimizing the impact of unconscious bias. However, we wish to emphasize that the significance of examination results may be lost if the examinations are completely separated from the circumstances of the case. Examiners are aware, however, that having case information could cause bias, and consciously take steps to

prevent having it influence their examination results. Forensic science cannot be conducted effectively in a vacuum.

Furthermore, AFTE feels that independent laboratories and examiners are just as susceptible to external influences and sources of bias as those that are administered by law enforcement agencies. The notion put forth in the NAS Report that forensic laboratories must be completely separated from law enforcement in order to be impartial, while a well-intentioned and reasonable step forward, should not be considered a panacea to prevent bias from cropping up in evidence analysis. It is up to the individual examiner, through proper work practices and appropriate introspection, to be ever vigilant against sources of bias that may influence his or her work.

In addition, most forensic laboratories have developed quality assurance systems to help ensure that bias does not affect examination results. Confirmation of identifications, peer review, administrative review, and blind verification are designed to catch mistakes, including those caused by examiner bias.

The NACDL has proposed that:

“Research conducted to develop automated techniques capable of enhancing forensic science technologies should include consideration of any limitations associated with the automated technique, and notification of such limitations should be provided together with results.”

It is important to remember that the AFTE Theory of Identification does not call for conclusions of absolute identity. It states that identifications are made to the practical exclusion, not the absolute exclusion, of other firearms or tools. Experiments continue to be performed that challenge the AFTE Theory of Identification, and the statement, “identity to the practical exclusion,” continues to be supported by this research [9].

No. 4 - Education

AFTE concurs with the NACDL’s support of training for the legal community. The statement made that *“The NAS Report accurately observed that legal professionals generally lack the scientific expertise necessary to comprehend and evaluate forensic science evidence in an informed manner. Attorneys and judges need significant education and training in the fundamentals of science, statistics, and common forensic science practices and the limitations of, and potential forms and scope of error associated with, those practices.”* is well reasoned.

AFTE supports forensic science training for the legal community. Many forensic laboratories already conduct training for the criminal justice community. It is not uncommon for many of our members to provide exactly the training called for in the NACDL response. In addition, many law schools have increased forensic science training and have used AFTE resources to help provide this critical need. Additionally, the Scientific Working Group for Firearms and Toolmarks (SWGUN) has developed an Admissibility Resource Kit (ARK) that is designed to provide information pertaining to the science of firearm and toolmark examination to any interested party. Numerous members of the legal system have explored this resource to answer questions about the examination process, the scientific principles on which the science is based, and how the science of firearm and toolmark identification fulfills admissibility requirements [10].

No. 5 – Transparency

AFTE cannot imagine any true professional not agreeing with the absolute need for transparency within all aspects of the criminal justice system. The NACDL’s statement *“The principle of transparency is fundamental to science and to the criminal justice system. Without full and open disclosure, the parties and the trier of fact in criminal proceedings are unable to fully evaluate the strengths and weaknesses of the evidence, such that the criminal justice system’s ability to have fair and accurate verdicts is substantially impaired.”* is fully endorsed by AFTE. As previously mentioned with regards to education, AFTE strives to provide all parties within the criminal justice system with the greatest access to its scientific knowledge and work.

No. 6 – Discovery

With regard to the issues of Discovery, in general, AFTE endorses the concept of providing everything required by law. However, it is important to note that the judiciary drafts discovery processes and it is up to individual forensic laboratory administrations to cooperate to the extent required by discovery orders. The NACDL’s position that *“Requiring greater disclosure from forensic science facilities is essential to any effort to reform forensic science. Even when the science itself improves and research is conducted that demonstrates the validity or invalidity of certain forensic science methods, both the prosecution and the defense will need full access to the forensic science evidence related to a particular case. Without greater access to information about the forensic science facilities and forensic science practitioners and a requirement that forensic science reports include all data relied on, all assumptions made and all limitations of opinions rendered, defendants will be denied fair trials and wrongful convictions*

will continue to occur” is not without some concern.

Many laboratories maintain written communication logs wherein all communications that deal with milestones, requests for examinations, and examination results are recorded. It is unreasonable to expect that conversations which do not relate to these general areas of a particular case will be recorded. It is also important to realize that in any specialized type of forensic comparison it may be possible to list specific documents relied upon. But, in most routine types of analysis, it is clearly unreasonable to do so since this would essentially require listing all articles read during one’s career.

Of even greater concern is the potential for unreasonable repercussions to the individual examiner from overzealous reaction if errors are detected through proficiency testing. Examiners, like attorneys, are human and despite working very hard to avoid mistakes, may still make them. Forensic laboratories have mechanisms for constructive rehabilitation when errors are discovered. If such errors are made public, the constructive rehabilitation process would be circumvented by a destructive process, which would not be in the best interest of the justice system.

With regards to how laboratory reports are generated, AFTE agrees that conclusions expressed in laboratory reports should be clearly worded in a way that includes assumptions and mirrors testimony that would be given in court. Additionally, when a reliable statistical basis for firearm and toolmark identification is available, AFTE will encourage its use. Progress has been made in this area for both striated [11,12], and impressed toolmarks [13,14]. However, at this time, no such model has been suitably validated for use.

No. 7 - Defense Resources

The NACDL makes the statement:

“The Constitution requires that criminal defendants be afforded due process of law, effective assistance of counsel, the ability to confront evidence proffered by the government, and the ability to produce witnesses. As the NAS Report makes clear in highlighting how the misuse and misunderstanding of forensic science has led to the conviction of innocent persons, forensic science reform must be viewed within the framework of these constitutional protections to ensure fair and accurate verdicts based on trustworthy evidence and to prevent wrongful convictions. While the prosecution has historically been the primary proponent of forensic science evidence, the defense bar also uses scientific evidence; indeed, many of the exonerations of innocent persons have been based on forensic science evidence. Additionally, even hampered by severe

economic constraints, it is typically the defense bar that has spotlighted deficiencies in, and limitations of, various forensic science disciplines. Defense counsel must have the ability to consult with experts in the forensic science disciplines and related scientific fields to identify for the courts and juries the scientific limits of the evidence and to present the results of independent testing and the testimony of independent experts when appropriate. Forensic science reform must, therefore, include providing the defense with resources to obtain the assistance of scientific experts for confidential consultation and testimony, and the use of forensic laboratories for independent, confidential testing.”

AFTE recognizes and supports the defense’s need to consult with experts about forensic science issues. But, when consulting with experts not qualified to conduct forensic casework, AFTE encourages NACDL members to require that such persons provide this consultation service in an ethical manner. This includes the preparation of articles for publication and court use, as well as testimony. Additionally, AFTE encourages its members, to the extent allowed by their respective agencies, to meet with the defense to discuss casework results. We recognize that this is often essential for planning trial strategy. Many public service crime laboratories routinely meet with the defense when requested. Some law enforcement administered laboratories even have as policy that their examiners are not to share, with the prosecution, defense trial strategy discussed during pre-trial meetings.

AFTE also recognizes the defense’s need to meet with private, trained forensic experts. AFTE also strongly believes that these private experts must be held to the same standards of accreditation, certification, ethics, etc., that are listed in Sections 1 through 7 of the “NACDL Preliminary Position Statements and Recommendations on Strengthening Forensic Science.” If the same standards are not required of private experts, the defense may put their client at risk by employing a non-qualified expert.

In summary, AFTE appreciates being given the opportunity to respond to the NACDL November 7, 2009 “Preliminary Position Statements and Recommendations on Strengthening Forensic Science ...”. We sincerely hope that our comments and references are seriously considered by NACDL. We are confident that you will conclude that a well-grounded culture of science pervades the forensic discipline of Firearm and Toolmark Examination and Identification.

Footnotes

- [1] Drafted 12-30-09 by the AFTE Committee for the Advancement of the Science of Firearm and Tool Mark Identification. Committee members include: John Murdock (Chair), Brandon Giroux, Lucien Haag, James Hamby, Ph. D., Andy Smith, and Peter Striupaitis.
- [2] The Response of the Association of Firearm and Tool Mark Examiners to the February 2009 National Academy of Science Report “Strengthening Forensic Science in the United States: A Path Forward, June 22, 2009, AFTE Journal, Vol 30, No. 3, Summer 2009, p 204 - 208
- [3] The Response of the Association of Firearm and Tool Mark Examiners to the National Academy of Sciences 2008 Report Assessing the Feasibility, Accuracy, and Technical Capability of a National Ballistics Database, August 20, 2008, AFTE Journal, Vol. 40, No. 3, Summer 2008.
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- [14] Collins E. R., “How Unique are Impressed Toolmarks? – An Empirical Study of 20 Worn Hammer Faces”, AFTE Journal, Vol. 37 No. 4, Fall 2005, p 252 - 295.