

**IN THE SUPERIOR COURT OF THE STATE OF DELAWARE  
IN AND FOR NEW CASTLE COUNTY**

STATE OF DELAWARE,                    )  
  )  
          v.                                    )     ID No. 1210013272  
  )  
JEFFREY PHILLIPS,                    )  
  )  
          Defendant.                    )

September 2, 2015

**SUPPLEMENTAL OPINION**

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Kevin J. O’Connell, Esquire, Raymond D. Armstrong, Esquire, and Misty A. Seemans, Esquire, Assistant Public Defenders, Public Defender’s Office, Wilmington, Delaware. Attorneys for the Defendant.

**SCOTT, J.**

## Introduction

Before the Court is Defendant Jeffrey Phillips' (the "Defendant") Motion *in Limine* to Exclude Carl Rone's ("Mr. Rone") Expert Testimony. Due to the proximity of the *Daubert* hearing to trial, the Court ruled from the bench on October 20, 2014, to allow Mr. Rone to testify as an expert in firearm and toolmark identification in this trial. Below is the Court's supplemental opinion on the admissibility of Mr. Rone as expert in this case. For the reasons set forth below, Defendant's Motion *in Limine* to Exclude Carl Rone's Expert Testimony was **DENIED**.

## Statement of Facts

Mr. Rone became a police officer with the Philadelphia Police Department in 1986.<sup>1</sup> In January of 1990, Mr. Rone began his training in the field of firearm and toolmark identification with the Philadelphia Police Department.<sup>2</sup> There, Mr. Rone completed a program where we learned to identify the make, model and caliber of firearms, and do microscopic identifications of evidence, such as cartridge casings, bullet specimens, bullet fragments and shotgun shells that have been fired.<sup>3</sup> The program teaches examiners first about the history of firearms identification and how generally guns are manufactured, and follows through to

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<sup>1</sup> *Daubert* Hearing Transcript at 11.

<sup>2</sup> *Id.* at 12.

<sup>3</sup> *Id.* at 10.

how to make the identifications and eliminations, or determine that the results are inconclusive.<sup>4</sup> Mr. Rone explained that the program is similar to an apprenticeship in that trainees are taught by senior examiners in the department using a hands-on approach. Over the course of approximately two and a half years, trainees begin with simple identification assignments and progress to more complex identification assignments.<sup>5</sup> While trainees gain more independence over the course of the program, all their work is still supervised and checked by senior examiners.<sup>6</sup>

Around November of 1992, Mr. Rone had completed his training in firearms identification with Philadelphia Police Department and became Court qualified to testify as an expert in the field in Pennsylvania.<sup>7</sup> While at Philadelphia Police Department, Mr. Rone eventually graduated to instructing firearms identification to new examiners in the department using the Association of Firearm Toolmark Examiners (“AFTE”) training program, which the Philadelphia Police Department follows.<sup>8</sup> Mr. Rone retired from the Philadelphia Police Department in 2007.<sup>9</sup>

Mr. Rone has testified as an expert in the field of Firearm and Toolmark Identification numerous times and in multiple jurisdictions, including Delaware,

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<sup>4</sup> *Id.* at 10-15. Mr. Rone noted that there is not always a positive identification.

<sup>5</sup> *See Id.* at 16-20.

<sup>6</sup> *Id.*

<sup>7</sup> *Id.* at 20-21.

<sup>8</sup> *Id.* at 23-24.

<sup>9</sup> *Id.* at 22.

over the course of his approximately 22 years of work in the field.<sup>10</sup> Throughout the course of his career, Mr. Rone has also been a member of several firearm and toolmark identification related groups such as, Association of Firearm Toolmark Examiners (“AFTE”), International Ammunition Association and International Wound Ballistic Association.<sup>11</sup> In addition to his experience at Philadelphia Police Department, Mr. Rone has also done contract work and given lectures for other jurisdictions. Mr. Rone both attends and has presented at annual AFTE conferences<sup>12</sup> and has instructed on firearms identification for the ATF’s national academy, Philadelphia College of Osteopathic Medicine and the Delaware State Police.<sup>13</sup> Over the years, Mr. Rone has also continued to take classes in firearms and toolmark identification offered by AFTE, the ATF and the FBI.<sup>14</sup>

Mr. Rone was certified by AFTE in firearms identification from 2007 to 2012, when his certification lapsed.<sup>15</sup> Mr. Rone was certified by AFTE in toolmark identification in 2014. Mr. Rone explained that firearms and toolmark

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<sup>10</sup> *See Id.* at 22; Carl Rone’s CV.

<sup>11</sup> *Daubert* Hearing Transcript at 25-26.

<sup>12</sup> Validation studies are often among to material presented at AFTE conferences. Moreover, kits that accompany the study are often given out, so that examiners may conduct the study at their own laboratories after the conference. *Id.* at 30.

<sup>13</sup> *Id.* at 25-27.

<sup>14</sup> *Id.* at 29.

<sup>15</sup> Mr. Rone’s AFTE certification in firearms identification will be renewed, pending his submission of certain criteria. *Id.* at 31-33.

identification are very similar, and that a firearm would be the “tool” being examined under toolmark identification.<sup>16</sup>

Mr. Rone became a firearms and toolmark examiner for the Delaware State Police Forensic Firearms Services Unit (“Unit”) in November of 2006.<sup>17</sup> The Unit consists of Mr. Rone, a Delaware State Trooper (the “Trooper”) and Robert Freese (“Freese”), a contract examiner.<sup>18</sup> At the *Daubert* hearing, Mr. Rone testified as to the procedure and methodology employed by the Delaware State Police forensic laboratory. The Trooper receives the ballistics evidence from the agency that collected it, which includes firearms, bullets and cartridge casings, at intake. He then logs the evidence into the lab’s computer system and places it into the evidence vault. When the Trooper logs the evidence into the computer system, he also enters it into the NIBIN system.<sup>19</sup>

The NIBIN system is a computer-based imaging system that assigns an algorithm to each image it sees based on a topographical view. Ballistics evidence is placed inside the system where it takes a photograph (i.e. digital image). It assigns values to aspects of each image by looking down at the item and producing a list of possibilities based on what it sees. The NIBIN system then searches its database for images that the lab has already entered into the system, or may also be

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<sup>16</sup> *Id.* at 33-34.

<sup>17</sup> *Id.* at 27.

<sup>18</sup> *Id.* at 5.

<sup>19</sup> *Id.* at 6.

sent out to different regions for comparison to their systems.<sup>20</sup> Based on parameters entered by the examiner, the system limits and sends back a list of possible matches found, if any. Those images from the list are then evaluated on the screen to determine what items of evidence need to be physically examined. From that list, Mr. Rone conducts physical examination of the necessary items.<sup>21</sup>

Following the AFTE manual specified to the Unit, Mr. Rone physically examined the ballistics evidence in this case, which included a 9mm and 40-caliber handgun, as well as numerous cartridge casings of both calibers, from the crime scenes. Mr. Rone separated the cartridge casings into two groups by caliber, and began his examination with the 9mm casings. He compared the standard 9mm<sup>22</sup> to the remaining 9mm cartridge casings. The casings were compared to the standard until a set of the same cartridge casings was matched; this process was then repeated with the remaining casings until all 9mm casings sets were identified. This process was also used to identify the sets for the 40-caliber cartridge casings. Mr. Rone identified three groups of 9mm casings and one group of 40-caliber casings.<sup>23</sup>

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<sup>20</sup> *Id.* at 7. Mr. Rone testified that these comparison regions generally include Pennsylvania, New Jersey, Delaware and Maryland, since they are states closest to each other.

<sup>21</sup> *Id.*

<sup>22</sup> Mr. Rone used the first 9mm cartridge casing from the group as his standard to determine the number of 9mm firearms that were involved.

<sup>23</sup> *Id.* at 38-46.

Next, Mr. Rone compared those groups of cartridge casings to the two firearms collected from the crime scene to pattern match<sup>24</sup> cartridge casings from the groups to either firearm.<sup>25</sup> To do this, Mr. Rone produced a pure bullet specimen (“standard”) for each firearm by test-firing into a water tank. Under the microscope, he examined the standard cartridge casing from each firearm to the casings in each group to determine if there were any matches. Mr. Rone concluded that six of the 40-caliber cartridge casings matched the 40-caliber Sig Sauer in this case and that 13 out of the 32 9mm cartridge casings matched the 9mm Taurus in the case. Mr. Rone’s microscopic examinations in this case were peer review by Freese.<sup>26</sup>

### **Parties’ Contentions**

Defendant contends that Mr. Rone’s forensic analysis is inadmissible under D.R.E. 401, 402, 703, and 702 because firearm and toolmark identification methodology fails to satisfy reliability under *Daubert v. Merrell Dow Pharmaceuticals*<sup>27</sup> and *Kumho Tire Co. v. Carmichael*.<sup>28</sup> Defendant also contends that the forensic analysis should be excluded under *Daubert* and D.R.E. 403, 702

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<sup>24</sup> Pattern matching is the comparison of the patterns on bullets or cartridge casings to see if the patterns fall together.

<sup>25</sup> One is a 9mm Taurus and the other is a 40-caliber Sig Sauer, both semiautomatic pistols.

<sup>26</sup> *Daubert* Hearing Transcript at 46-48. The Unit’s standard policy since Mr. Rone started in 2007 is that approximately 10% of Mr. Rone’s microscopic examinations are subjected to peer review. Mr. Rone estimates that that percentage has increased slightly since January of 2014 with Freese becoming a contract examiner for the Unit.

<sup>27</sup> 509 U.S. 579 (1993).

<sup>28</sup> 526 U.S. 137 (1999).

and 703 because the Delaware State Police Firearm and Toolmark Identification Laboratory fails to use a testing method recognized by an authorized organization, is not accredited by a recognized scientific accreditation agency and no outside recognized accreditation body or authority has determined it to be a reliable lab using recognized methods and protocols. Finally, Defendant contends that Mr. Rone's testimony should be excluded under D.R.E. 702 and 703 because his qualifications as a firearms and toolmark examiner do not satisfy the requirements under *Daubert*. Defendant argues that Mr. Rone's qualifications do not satisfy the *Daubert* requirements because Mr. Rone's post-secondary education is unrelated to firearms and toolmark identification, his formal training in firearms and toolmark identification is insufficient, and he is not certified as a firearms examiner.

The State presented Mr. Rone to testify in the trial of Jeffrey Phillips, in an expert capacity, concerning his forensic analysis of the ballistics evidence collected in connection with this case. The State contends that Mr. Rone's training and experience exceeds that which is required to qualify him as an expert in the field of firearms and toolmark identification. The State also contends that the evidence to which Mr. Rone would testify about is relevant, Mr. Rone's opinion is within his field of expertise and his testimony will assist the trier of fact to understand evidence or determine a fact in issue. The State further contends that the process Mr. Rone used to make the comparisons is the same one reasonably relied upon by



experts in this particular field. Finally, the State contends that Mr. Rone's testimony will not create unfair prejudice or confuse or mislead the jury because his testimony is limited to the matching of the casings at the scene with the firearm located on the Delaware Memorial Bridge.

### Discussion

#### **I. CARL RONE IS QUALIFIED AS AN EXPERT IN FIREARM AND TOOLMARK IDENTIFICATION UNDER D.R.E. 702**

Rule 702 of the Delaware Rules of Evidence governs the admissibility of expert testimony. It states:

If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training or education may testify thereto in the form of an opinion or otherwise, if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.<sup>29</sup>

The trial judge's role is merely to determine "whether the proponent of the evidence has demonstrated that scientific conclusions have been generated using sound and reliable approaches."<sup>30</sup> Proponents of expert testimony must "demonstrate by a preponderance of the evidence that their opinions are reliable."<sup>31</sup>

The court's function under *Daubert* "is not intended to supplant the adversarial

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<sup>29</sup> D.R.E. 702.

<sup>30</sup> *State v. McMullen*, 900 A.2d 103, 114 (Del. Super. 2006).

<sup>31</sup> *Id.* (citing *In re Paoli R.R. Yard PCB Litigation*, 35 F.3d 717, 744 (3d Cir. 1994)).

system or the role of the jury.”<sup>32</sup> So long as the basis of the expert’s testimony satisfies Rule 702, “vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking ... admissible evidence.”<sup>33</sup>

The Court finds that Carl Mr. Rone is qualified as an expert in firearms and toolmark identification under the requirements of D.R.E. 702. As discussed above, Rule 702 permits one to be qualified as an expert through various means, including but not limited to, training, experience and study of the literature relating to a field.<sup>34</sup> Foremost, Mr. Rone has been admitted as an expert in the field of firearms and toolmark identification in several trials in this State, as well as many trials in other jurisdictions.<sup>35</sup> Mr. Rone has also been a regular member of the AFTE since

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<sup>32</sup> *Allison v. McGhan*, 184 F.3d 1300, 1311 (11th Cir. 1999).

<sup>33</sup> *Daubert*, 509 U.S. at 596.

<sup>34</sup> *United States v. Otero*, 849 F.Supp.2d 425, 436 (D.N.J. 2012).

<sup>35</sup> At trial, the State objected to defense counsel’s cross examination of Mr. Rone regarding an instance where a Virginia District Court declined to admit Mr. Rone as an expert. In *U.S. v. Fultz*, the Virginia District Court declined to admit Mr. Rone to testify as an expert in the field of crime scene reconstruction. 2014 WL 1870785, at \*8 (E.D. Va. May 9, 2014) (holding that “after accepting Rone's qualifications [in firearms, ballistics, and shooting scene reconstruction], and reviewing the expert report, defense counsel's summary of his report, and proffered expert opinion testimony..., the Court found that Rone provided insufficient information on the methodology he used to reach his opinion on the location of the Bushmaster shooter as well as insufficient evidence and no degree of the probability of his findings to support the reliability of his opinion.... Accordingly, the Court excluded that portion of Rone's opinion testimony which related to the position of the Bushmaster shooter....”).

Despite the fact that the State had cited this case in its brief submitted before the *Daubert* hearing held for Mr. Rone in this case, defense counsel failed to address the issue at the hearing. See State’s Response to Defendant’s Motion *in Limine* to Exclude Testimony of Carl Rone, at 11 n. 48. Moreover, at sidebar on the State’s objection, both parties failed to recognize that the case had been cited before the hearing. In fact, when the Court questioned the parties about this oversight, defense counsel asserted that they had only just found the case. See Oct. 31, 2014 Trial

1997.<sup>36</sup> Moreover, Mr. Rone passed the AFTE written portion of the Certification Examination in Firearms Identification in 2001.<sup>37</sup> He also passed the AFTE written portion of the Certification Examination in Toolmark Identification in 2003.<sup>38</sup> Mr. Rone was certified in Firearms Evidence Examination and Identification from 2007-2012 and was certified in Toolmarks Evidence Examination and Identification in 2014.<sup>39</sup> Furthermore, Mr. Rone has over 20 years of experience in the field.<sup>40</sup>

It is based on this extensive experience and training that the Court finds that Carl Rone is qualified to testify as an expert in the field of firearms and toolmark identification. Importantly, any issue Defendant takes with Mr. Rone's credibility as an expert in this field should be handled by "vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof

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Transcript at 56, 70. The Court sustained the State's objection to the use of the Virginia District Court case to impeach Mr. Rone's credibility as a firearms and toolmark identification expert because the Virginia case was not relevant to Mr. Rone's expert testimony in this case. Furthermore, introduction of the Virginia case for the purpose of challenging Mr. Rone's qualification as an expert in firearms and toolmark identification would be confusing to the jury because the Virginia District Court's decision was limited to the field of crime scene reconstruction only. At no time in this case did Mr. Rone testify regarding crime scene reconstruction; his testimony was limited to firearms and toolmark identification. Accordingly, defense counsel's use of another jurisdiction's decision not to admit Mr. Rone to testify as an expert in an entirely unrelated field was not relevant to Mr. Rone's testimony in this case and would have unduly confused the jury. However, the Court did note that the Virginia case may be relevant for the narrow purpose of impeachment.

<sup>36</sup> Carl Rone's CV.

<sup>37</sup> Def. Mot. in *Limine* to Exclude the Testimony of Carl Rone and Mot. for *Daubert* Hearing at Ex. 9.

<sup>38</sup> *Id.*

<sup>39</sup> *Id.*; Carl Rone's CV.

<sup>40</sup> *See* Carl Rone's CV.

[which] are the traditional and appropriate means of attacking...admissible evidence.”<sup>41</sup>

## **II. THE AFTE FIREARMS AND TOOLMARK METHODOLOGY IS RELIABLE UNDER DAUBERT**

All that is in controversy when a *Daubert* challenge is made is whether an expert’s conclusions are reliable. The test of reliability remains flexible.<sup>42</sup> Reliability under *Daubert* means that the conclusions are a product of an intellectually rigorous application of knowledge and experience appropriate to the field of expertise.<sup>43</sup> In *Daubert*, the United States Supreme Court held that scientific testimony, if questioned, must be subjected to a reliability assessment and found to be sound. *Daubert* sets forth five factors that are suggested for trial courts to rely upon when evaluating the reliability of proposed expert testimony, including:

- (1) whether a theory or technique has been tested;
- (2) whether it has been subjected to peer review and publication;
- (3) whether a technique had a high known or potential rate of error;
- (4) whether there are standards controlling its operation; and
- (5) whether the theory or technique enjoys general acceptance within a relevant scientific community.<sup>44</sup>

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<sup>41</sup> *Daubert*, 509 U.S. at 596.

<sup>42</sup> *Kumho Tire*, 526 U.S. at 141.

<sup>43</sup> *Rodriguez v. State*, 30 A.3d 764, 769 (Del. 2011).

<sup>44</sup> *Daubert*, 509 U.S. at 509-94; *Kumho Tire*, 526 U.S. at 145, 149-50.

These factors are not to be used as a “definitive checklist or test” where they may not be pertinent to the facts of a given case, the nature of an expert’s particular expertise or the subject of his or her testimony.<sup>45</sup>

The Court in *United States v. Otero*<sup>46</sup> is one of the few courts in the Third Circuit to address a *Daubert* motion focusing on firearms and toolmark identification. The *Otero* Court analyzes the methodology employed by the AFTE theory under *Daubert* standards. This Court reproduces that analysis here as a basis for the reliability of the methodology for the AFTE firearms and toolmark identification, generally.

### **1. Whether the Theory Can be or Has Been Tested**

The AFTE is the leading international organization for firearms and toolmark examiners. The AFTE theory of toolmark comparison permits an examiner to conclude that two bullets or two cartridges are of common origin (i.e. fired from the same gun) when the microscopic surface contours of their toolmarks are in “sufficient agreement.” The “sufficient agreement” standard under the AFTE theory is defined as:

This sufficient agreement is related to the significant duplication of random toolmarks as evidenced by a pattern or combination of patterns of surface contours. Significance is determined by the comparative examination of two or more sets of surface contour patterns comprised of individual peaks, ridges and furrows.

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<sup>45</sup> *Bowen v. E.I. DuPont de Nemours & Co. Inc.*, 906 A.2d 787, 794-95 (Del. 2006).

<sup>46</sup> 849 F.Supp.2d 425, *aff’d*, 557 Fed. Appx. 146 (3d Cir. 2014).

Specifically, the relative height or depth, width, curvature, and spatial relationship of the individual peaks, ridges and furrows within one set of surface contours are defined and compared to the corresponding features in the second set of surface contours. Agreement is significant when it exceeds the best agreement demonstrated between toolmarks known to have been produced by different tools and is consistent with agreement demonstrated by toolmarks known to have been produced by the same tool. The statement that “sufficient agreement” exists between two toolmarks means that the agreement is of a quantity and quality that the likelihood another tool could have made the mark is so remote as to be considered a practical impossibility.<sup>47</sup>

The theory acknowledges that there is a subjective component to the determination of “sufficient agreement,” which must necessarily be based on the examiner’s training and experience.<sup>48</sup>

This Court finds that the AFTE theory is testable and has been tested. Studies have been conducted to test the validity of the AFTE theory. The literature shows that many studies demonstrating the uniqueness and reproducibility of firearms and toolmark identification have been conducted.<sup>49</sup>

Pursuant to the AFTE theory of identification, when an examiner concludes that a particular, individual firearm's toolmarks have produced the markings on an examined bullet or shell, he or she “is

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<sup>47</sup> *Id.* at 431 (quoting *Theory of Identification, Range of Striae Comparison Reports and Modified Glossary Definitions – An AFTE Criteria for Identification Committee Report*, AFTE Journal, Vol. 24, No. 3, 1992, at 337).

<sup>48</sup> *Id.* at 432.

<sup>49</sup> *Id.* See, e.g., Ronald G. Nichols, *Firearms and Toolmark Identification Criteria: A Review of the Literature*, J. Forensic Sci., Vol. 42, No. 3, 1997, at 466; Ronald G. Nichols, *Firearm and Toolmark Identification Criteria: A Review of the Literature, Part II*, J. Forensic Sci., Vol. 48, No. 2, 2003, at 1; Richard Grzybowski, et al., *Firearm/Toolmark Identification: Passing the Reliability Test Under Federal and State Evidentiary Standards*, AFTE Journal, Vol. 35, No. 2, Spring 2003, at 213.

basing this opinion on the fact that the nature of toolmark agreement, whether impressed or striated, exceeds the best known non-matching agreement that has ever been personally observed, seen in the literature, or discussed with other examiners.” Grzybowski at 213. Though the methodology of comparison and the AFTE “sufficient agreement” standard inherently involves the subjectivity of the examiner's judgment as to matching toolmarks, the AFTE theory is testable on the basis of achieving consistent and accurate results. *Id.* The literature in the field of firearms and toolmark identification documents that the theory has been repeatedly tested. Industry standard, moreover, dictates that one examiner's findings must be reviewed by another examiner to confirm, or possibly disagree, with those findings.... [T]his process is known as “peer review.”<sup>50</sup>

This Court finds that the literature, validity studies and peer review process of confirming identifications demonstrate that the AFTE firearms and toolmark identification theory is testable and has been tested.

## **2. Peer Review and Publication of AFTE Theory**

The *Otero* Court evaluated the peer review and publication factor as applied to the AFTE theory as follows:

AFTE theory is subject to peer review through submission to and publication by the AFTE Journal of validation studies which test the theory. The AFTE Journal publishes articles, studies and reports concerning firearm and toolmark evidence. It has a formal process for the submission of articles, including “specific instructions for writing and submitting manuscripts, assignment of manuscripts to other experts within the scientific community for a technical review, returning of manuscripts to authors for clarification or re-write, and a final review by the Editorial Committee.” Grzybowski, at 220. There is also a formal post-publication peer review process, allowing AFTE members and any other interested individuals to comment on previously published articles. The validation studies discussed above

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<sup>50</sup> *Otero*, 849 F.Supp. 2d at 433.

in Section 1, which the Government has submitted to demonstrate the testability and viability of AFTE identification theory, were published in the AFTE Journal.<sup>51</sup>

Following the *Otero* Court's analysis, this Court finds that the AFTE theory satisfies the peer review and publication factor under *Daubert*.

### **3. Known or Potential Rate of Error**

This Court also adopts the conclusions of the *Otero* Court that the AFTE theory satisfies the known or potential rate of error factor under *Daubert*. The *Otero* Court's analysis of the known or potential rate of error factor is as follows:

Commenting on other researchers' analyses of data supplied by the Collaborative Testing Service ("CTS") on international proficiency testing in the firearm and toolmark identification discipline, Grzybowski's 2003 AFTE Journal article summarized error rate calculations derived from the CTS proficiency testing results. He reported that CTS data for the period 1978 to 1997 (firearms) and 1981 to 1997 (toolmarks) demonstrated that false-identification error rates were 0.9% for firearms and 1.5% for toolmarks, and for the period 1998 to 2002, were 1.0% for firearms and 1.2% for toolmarks. Grzybowski at 217. These percentages, he noted, do not include false eliminations or an examiner's determination of "inconclusive." Grzybowski's article also points out that there are other limitations to using the proficiency testing data to calculate an error rate, such as the inherent motivation in such a test for the examiner, whose proficiency is being evaluated, to tend toward conservative results and the lack of peer review or other quality control measure applied to such examinations.

The Court nevertheless finds that, while a definitive error rate has not been calculated, the information derived from the proficiency testing is indicative of a low error rate. The Court further finds that the error rate for false positives, as reported by the Grzybowski article, is

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<sup>51</sup> *Id.*



pertinent to its assessment of the expert testimony in this case, as the proffered testimony would make such a positive identification of the guns recovered from Defendants as the origin of the bullet and shells recovered from the crime scene. Indeed, for purposes of utilizing toolmark identification in legal proceedings, the critical validation analysis has to be the extent to which false positives occur. Virtually by definition, any situation in which the examiner concludes that the comparison is inconclusive means that the examination will have no probative value and will thus not be considered by the trier of fact.<sup>52</sup>

The studies presented in *Otero* showed that the error rates for false identifications made by trained examiners are low, specifically around 1 to 2 percent.<sup>53</sup>

Accordingly, this Court finds that the AFTE theory satisfies the known or potential rate of error factor under *Daubert*.

#### **4. Existence and Maintenance Standards Controlling Technician's Operation**

In *Otero*, the Court analyzed the existence and maintenance of standards controlling the technique's operation factor applied to the AFTE theory as follows:

As discussed above, the AFTE standard of "sufficient agreement" is the established standard controlling firearms and toolmark identification. The New Jersey State Police ("NJSP") Laboratory, under the purview of which Deady conducted the examination of the evidence involved in this case, maintains a Firearms and Toolmarks Procedures Manual (the "Manual") which follows the AFTE standard. It provides that "[a] sufficient correspondence of individual characteristics will lead the examiner to conclude that both items (evidence and tests) originated from the same source (Positive)." The Manual details procedures for the analysis of evidence bullets and shells for comparison with test specimens utilizing a comparison microscope, which "allows the examiner to place the evidence and a

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<sup>52</sup> *Id.* at 433-34.

<sup>53</sup> *Id.* at 434.

test standard simultaneously on a microscope for comparison purposes.” Among other steps it outlines, the Manual requires the examiner to compare test-fired components against each other first under the comparison microscope to establish reproducibility of class and individual characteristics. The examiner may then proceed to compare the discharged evidence in question to a test fired shot known to have originated from a particular firearm. The Manual requires that the entire evidence surface be considered. The Manual also provides for a peer review of each examination to be conducted by another firearms examiner to ensure the integrity of the examination process and accurate results.<sup>54</sup>

Adopting the reasoning of the *Otero* Court, this Court finds that the AFTE theory satisfies the existence and maintenance of standards controlling the technique’s operation factor under *Daubert*.

## **5. General Acceptance of the Theory**

The court in *Otero* held that the AFTE theory is generally accepted among professionals in the field of firearm and toolmark identification.

Courts have observed that the AFTE theory of firearms and toolmark identification is widely accepted in the forensic community and, specifically, in the community of firearm and toolmark examiners. *See United States v. Diaz*, No. CR 05–167 WHA, 2007 WL 485967, at \*11 (N.D.Cal. Feb. 12, 2007). Even courts which have criticized the bases and standards of toolmark identification have nevertheless concluded that AFTE theory and its identification methodology is widely accepted among examiners as reliable and have held the expert identification evidence to be admissible, albeit with limitations. *United States v. Taylor*, 663 F.Supp.2d 1170, 1178 (D.N.M. 2009); *United States v. Monteiro*, 407 F.Supp.2d 351, 372 (D.Mass. 2006); *United States v. Green*, 405 F.Supp. 2d 104, 122-24 (D.Mass. 2005).

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<sup>54</sup> *Id.* at 434-35. (Citations omitted).

Deady testified that he followed all NJSP laboratory procedures in conducting the subject examinations. He documented his observations and findings with detailed notes and explanations in his report, which not only gave his conclusions as to a positive match but also stated the reasons for that conclusion. For example, the report states that Deady's comparison of the test 9 mm shells he fired with the evidence 9 mm shell results in a positive identification of the origin weapon because he found pattern matching according to the CMS method as to breechface marks, firing pin drag and firing pin aperture shearing and a match as to the firing pin impression (where CMS is not applicable). Deady also took a number of photographs, known as photomicrographs, of the side-by-side microscopic images of the evidence and test specimens as compared for agreement regarding various types of toolmarks, such as striations made by impact of the cartridge against the breech face of the 9 mm's firing chamber and impressions left by the firing pin. Additionally, Deady's report, and his testimony, reflect that the peer review procedure was followed in his examination.<sup>55</sup>

Based on this reasoning, this Court finds that the AFTE theory is generally accepted among professional examiners as a reliable method of firearms and toolmark identification.

Adopting the *Otero* Court's analysis, this Court finds that the AFTE methodology for firearms and toolmark identification is reliable under the *Daubert* requirements. As discussed in each section above, the AFTE methodology can be and has been tested, and it has been subjected to peer review and publication. The AFTE methodology also has a low error rate of approximately – 1 to 2 percent – for false identifications when employed by trained examiners. Moreover, the AFTE provides an extensive manual that dictates the standards for examiners to

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<sup>55</sup> *Id.* at 435.

adhere to while conducting their examinations. Finally, the AFTE methodology is generally accepted among professional examiners as a reliable method of firearms and toolmark identification. Importantly, Defendant even concedes that the AFTE methodology is reliable.<sup>56</sup> Accordingly, the Court finds that the AFTE methodology for firearms and toolmark identification is reliable under *Daubert*.

### III. CARL RONE'S EXPERT TESTIMONY IS ADMISSIBLE

The trial court must determine the admissibility of an expert witness using a five factor test:

- (a) The expert witness is qualified (D.R.E. 702);
- (b) The evidence is otherwise admissible, relevant, and reliable (D.R.E. 401 and 402);
- (c) The bases for the opinion are those reasonably relied upon by experts in the field (D.R.E. 703);
- (d) The specialized knowledge being offered will assist the trier of fact to understand the evidence or determine a fact in issue (D.R.E. 702); and
- (e) The evidence does not create unfair prejudice, confuse the issues, or mislead the jury (D.R.E. 403).<sup>57</sup>

Thus, the admissibility of expert testimony is based first on whether the witness is qualified as an expert under D.R.E. 702 and whether the methodology employed by the expert was reliable under *Daubert*. If those two thresholds are met, the court must still determine whether the proposed expert testimony is otherwise

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<sup>56</sup> “These statements make it clear that Mr. Rone is using a methodology that differs *from the more standardized and presumably validated method recommended by the AFTE*, his professional organization.” Def. Mot. *in Limine* to Exclude the Testimony of Carl Rone and Mot. for *Daubert* Hearing. (emphasis added).

<sup>57</sup> *Minner v. Am. Mortg. & Guar. Co.*, 791 A.2d 826, 842-43 (Del. Super. 2000).

admissible and relevant, whether it will assist the trier of fact to determine an issue, and whether it would not create unfair prejudice.

As discussed above, the Court has found that Mr. Rone is qualified to testify as a firearms and toolmark identification expert under D.R.E. 702. The Court has also found that the AFTE firearms and toolmark identification methodology is reliable under *Daubert*. The issues left to be resolved to determine whether Mr. Rone's expert testimony is admissible in this case are whether: (1) Mr. Rone employed the AFTE methodology in his examination of the ballistics evidence in this case,<sup>58</sup> (2) the testimony is otherwise admissible, relevant,<sup>59</sup> and will assist the trier of fact to understand the evidence or determine a fact in issue,<sup>60</sup> and (3) the evidence would create unfair prejudice, confuse the issues, or mislead the jury.<sup>61</sup>

**1. Mr. Rone employed the AFTE methodology in his examination of the ballistics evidence.**

The Court does not agree with defense's assertion that Mr. Rone's "statements make it clear that Mr. Rone is using a methodology that differs from the more standardized and presumably validated method recommended by the AFTE, his professional organization."<sup>62</sup> Mr. Rone's statements during previous trials in which he has testified that the AFTE manual does not need to be followed

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<sup>58</sup> D.R.E. 703.

<sup>59</sup> D.R.E. 401.

<sup>60</sup> D.R.E. 702.

<sup>61</sup> D.R.E. 403.

<sup>62</sup> Def. Mot. in *Limine* to Exclude the Testimony of Carl Rone and Mot. for *Daubert* Hearing.

word for word and that it can be used as it best suits the examiner<sup>63</sup> do not prove that Mr. Rone deviates from the AFTE manual generally, or more importantly, that Mr. Rone deviated from the AFTE manual in this case.

Under D.R.E. 702 the proffered testimony of an expert must provide relevant and reliable principles and methodology. This rule does not require that the conclusions derived from those principles and methods be scientifically valid. When the expert's application of his principles and methods to the facts is challenged, the Court must determine that the expert "has a reliable basis in the knowledge and experience of [the relevant] discipline."<sup>64</sup> The Delaware Supreme Court has previously held Mr. Rone's expert testimony in the field of firearms and toolmark identification to be reliable because Mr. Rone explained at trial the principles and methods that he employed in his examination, and applied those principles and methods to the facts.<sup>65</sup> As the Supreme Court stated, "we require the principles and methods – not the conclusions to be scientifically valid."<sup>66</sup> Moreover, the Supreme Court reasoned that the defendant was able to cross-examine Mr. Rone on those principles and his methodology.<sup>67</sup>

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<sup>63</sup> *Id.*

<sup>64</sup> *McNally v. State*, 980 A.2d 364, 370 (2009) (citations omitted).

<sup>65</sup> *Id.*

<sup>66</sup> *Id.*

<sup>67</sup> *Id.*

At the *Daubert* hearing, Mr. Rone clarified his statements referenced by defense counsel from trials that Mr. Rone has previously testified at.<sup>68</sup> Mr. Rone explained that the deviation from the AFTE manual suggested by those statements is limited to the application of updated procedures and replacement of outdated equipment that are implemented in the field.<sup>69</sup> As Mr. Rone noted, the last published version of the AFTE manual is from approximately 1998.<sup>70</sup> Therefore, examiners in the field supplement the AFTE manual with updated methods and equipment as technology and testing procedures evolve.<sup>71</sup> Moreover, at the *Daubert* hearing Mr. Rone outlined the methods he used in the examination of the ballistics evidence in this case.<sup>72</sup> Furthermore, Mr. Rone testified that these methods follow those set out in the AFTE manual.

The Court is satisfied by Mr. Rone's testimony at the *Daubert* hearing that Mr. Rone employed the AFTE methodology, including any updated procedures and equipment generally accepted in the field, in his examination of the ballistics evidence in this case.<sup>73</sup> Accordingly, the Court finds that Mr. Rone's conclusions in this case are based on the application of reliable principles and methods in the field of firearms and toolmark identification.

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<sup>68</sup> *Daubert* Hearing Transcript at 39-40.

<sup>69</sup> *Id.* at 40.

<sup>70</sup> *Id.* at 41.

<sup>71</sup> *Id.* at 41.

<sup>72</sup> *See Otero*, 849 F.Supp. 2d at 435 (As discussed above, the examiner in *Otero* described the lab's procedures and those he followed in conducting his examination of the ballistics evidence.).

<sup>73</sup> *Id.* at 42.

**2. The evidence is otherwise admissible, relevant and will assist the trier of fact to understand the evidence or determine a fact in issue.**

At the time of the *Daubert* hearing, the State was offering Mr. Rone's testimony at trial with regard to his examination and analysis of the ballistics evidence collected from Eden Park and other crime scenes relevant to the case. The defendants here were alleged to have been involved in the Eden Park shootings, as well as other crime scenes encompassed in this case. In making its determination on this factor, the Court found Mr. Rone's testimony was relevant because it would help explain the ballistics evidence introduced against the defendants, which is direct evidence of the defendants' involvement in the Eden Park shooting on July 8, 2012. Therefore, Mr. Rone's testimony would assist the jury to determine a fact in issue.

**3. The evidence will not create unfair prejudice, confuse the issues, or mislead the jury.**

In addition to the reasons discussed above, Mr. Rone's testimony would be limited to the analysis of the ballistics evidence collected at the Eden Park crime scene and other at crime scenes related to this case. Therefore, Mr. Rone's testimony would not create unfair prejudice or confuse or mislead the jury.



**Conclusion**

For the reasons set forth above, Defendant's Motion *in Limine* to Exclude Carl Rone's Expert Testimony was **DENIED**.

**IT IS SO ORDERED.**

**/s/Calvin L. Scott**  
Judge Calvin L. Scott, Jr.