DISTRICT COURT OF THE VIRGIN ISLANDS
DIVISION OF ST. CROIX

UNITED STATES OF AMERICA and PEOPLE OF THE VIRGIN ISLANDS,	)	
v.	)	
	)	**Criminal Action No. 2013-0003**
ELVIN WRENSFORD and CRAIG MULLER,	)	
Defendants.	)	

Attorneys:
Alphonso G. Andrews, Jr., Esq.,
Rhonda Williams-Henry, Esq.,
St. Croix, U.S.V.I.
For the Government

Omodare B. Jupiter, Esq.,
St. Croix, U.S.V.I.
For Defendant Elvin Wrensford

Martial A. Webster, Sr., Esq.,
St. Croix, U.S.V.I.
For Defendant Craig Muller

MEMORANDUM OPINION

Lewis, Chief Judge

THIS MATTER is before the Court on Defendant Elvin Wrensford's "Motion for *Daubert* Hearing" (the "Motion"). (Dkt. No. 52). In his Motion, Wrensford challenges, *inter alia*, the firearm and toolmark examiner named as an expert by the Government, Reynold DeSouza ("DeSouza"), and seeks to exclude his testimony under the admissibility requirements of Federal Rule of Evidence 702 and the principles espoused in *Daubert v. Merrill Dow Pharms., Inc.*, 509

U.S. 579 (1993).[1] The Government opposes the Motion. (Dkt. No. 70). An evidentiary hearing was held on February 28, 2014. For the reasons set forth below, the Court will deny Defendant's Motion to the extent that he seeks to exclude DeSouza's testimony.

I. INTRODUCTION

On May 10, 2012, at approximately 8:00 p.m., a shooting occurred in the vicinity of Food Town/Gulf Coast Custom Kitchens in Christiansted, St. Croix, U.S. Virgin Islands. On May 12, 2012, the victim, Gilbert Hendricks, Jr., died from gunshot wounds to the head suffered in the shooting.

Virgin Islands Police Department ("VIPD") Sergeant Richard Matthews conducted an investigation of the shooting and provided an Affidavit in Support of the Arrest and Detention of Elvin Wrensford and Craig Muller. (Dkt. Nos. 2-1 and 3-1 in 12-cr-12). In his Affidavit, Sgt. Matthews summarized statements from four witnesses who heard several shots discharged from a red truck occupied by two black males. Some of the witnesses were able to identify the shooter and the driver of the truck. The VIPD apprehended Defendant Wrensford, traveling on foot. approximately one hour after the incident and about one and one-half miles from the crime scene. The VIPD later recovered a 9mm firearm with an empty magazine approximately five feet from where Wrensford was apprehended. Defendant Muller was arrested on May 17, 2012. *Id.*

Both Defendants were initially charged with federal and local crimes in an Information filed in the District Court of the Virgin Islands in June 2012. (Dkt. No. 1 in 12-cr-12). On January 29, 2013, the Defendants were indicted. (Dkt. No. 1 in 13-cr-3). Defendants Wrensford and Muller were charged with Possession of a Firearm in a School Zone, in violation of 18

[1] Defendant Wrensford's Motion for *Daubert* Hearing also challenged and sought to exclude the testimony of the Government's DNA expert. The Court denied that aspect of the Motion in a Memorandum Opinion and Order dated March 25, 2014. (Dkt. Nos. 110, 111).

U.S.C. § 922(q)(2)(A); Using a Firearm during a Violent Crime, in violation of 18 U.S.C. § 924(c)(1)(A); Murder in the First Degree, in violation of 14 V.I.C. § 922(a)(1); and Unauthorized Possession of a Firearm, in violation of 14 V.I.C. § 2253(a). In addition, Defendant Wrensford was charged with Possession of a Firearm with an Obliterated Serial Number, in violation of 18 U.S.C. § 922(k). *Id.*

In his *Daubert* Motion, Wrensford challenges "the qualifications, reliability of the firearm testing method, procedures and conclusions made by firearms and tool mark examiner Reynold De[S]ouza who opined on behalf of the Government." (Dkt. No. 52 at 2). Wrensford goes on to say that DeSouza "appears to be an intern"; that DeSouza "claims to have been qualified as an expert in one unidentified case before this Honorable Court but not in any other court within this district or the Third Circuit"; and "De[S]ouza's conclusions appear to extend beyond his claimed expertise and are not reliable since they are not based on objective standards but rather his subjective observations and conclusions." *Id.* DeSouza's reports, dated May 22, June 8, and August 6, 2012 opine, *inter alia*, that some of the recovered bullets and cartridge cases found at the crime scene were fired from the 9mm Smith & Wesson Parabellum firearm[2] recovered a few feet from where Wrensford was apprehended.

Defendant Craig Muller filed a Notice of Joinder in Wrensford's Motion for a *Daubert* hearing "as it pertains to defendant Craig Muller." (Dkt. No. 65).

[2] In DeSouza's Reports, this firearm is referred to as a "Smith & Wesson (USA), Model 459, 9mm Parabellum, Semi Automatic Pistol." (Hearing Ex. 33). DeSouza also indicates that 9mm LUGER cartridge cases matched the test-fired cartridge cases from this pistol. *Id.*

II. BACKGROUND

A. Background: The Theory Behind Firearms Analysis

In *United States v. Otero*, 849 F. Supp. 2d 425 (D.N.J. 2012)—one of the few courts in the Third Circuit to address a *Daubert* motion focusing on firearms and toolmark identification—the district court provided a summary of the theory underlying the discipline. The Court reproduces that as background here, as it describes the same method of firearms identification used in this case. Moreover, the Third Circuit recently affirmed the district court's holding in *United States v. Otero*, 557 F. App'x 146 (3d Cir. 2014).

> The *Daubert* motions before the Court revolve around the reliability of forensic toolmark examination employed to identify the firearm from which discharged ammunition originated. By way of background, the Court begins with some relevant definitions. The Third Circuit has observed that the general category of forensic identification evidence "serves to 'connect a crime scene object or mark to the one and only source of that object or mark.' " *United States v. Ford*, 481 F.3d 215, 219 n.5 (3d Cir. 2007) (quoting Michael J. Saks, *Banishing Ipse Dixit: The Impact of Kumho Tire on Forensic Identification Science*, 57 Wash. & Lee L. Rev. 879, 881 (2000)). Forensic toolmark identification is a discipline that is concerned with the matching of a toolmark to the specific tool that made it. Firearm identification is a specialized area of toolmark identification dealing with firearms, which involve a specific category of tools. 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 211. "Toolmarks are generated when a hard object (tool) comes into contact with a relatively softer object." National Research Council, *Strengthening Forensic Science in the United States: A Path Forward*, at 150 (National Academies Press 2009). Toolmarks associated with a firearm may occur in the commission of a crime when "the internal parts of a firearm make contact with the brass and lead [or other materials] that comprise ammunition." *Id.* "The manufacture and use of firearms produces an extensive set of specialized toolmarks." *Id.* at 150–51.
>
> Toolmark identification is based on the theory that tools used in the manufacture of a firearm leave distinct marks on various firearm components, such as the barrel, breech face or firing pin. The theory further posits that the marks are individualized to a particular firearm through changes the tool undergoes each time it cuts and scrapes metal to create an item in the production of the weapon. Toolmark identification thus rests on the premise that any two manufactured products, even those produced consecutively off the same

> production line, will bear microscopically different marks. With regard to firearms, these toolmarks are transferred to the surface of a bullet or shell casing in the process of firearm discharge. Depending on the tool and the type of impact it makes on the bullet or casing, these surface marks consist of either contour scratch lines, known as striations (or striae), or impressions.[3] For example, rifling (spiraled indentations) inside of a gun barrel will leave raised and depressed striae, known as lands and grooves, on the bullet as it is fired from the weapon, whereas the striking of the firing pin against the base of the cartridge, which initiates discharge of the ammunition, will leave an impression but not striae.
>
> Comparing a test bullet or cartridge fired from a firearm of known origin to another bullet or cartridge of unknown origin, the examiner seeks to determine congruence in the pattern of marks left on the examined specimens. This process is known as "pattern matching." . . . An examiner observes three types of characteristics on spent bullets or cartridges: class, subclass and individual. Class characteristics are gross features common to most if not all bullets and cartridge cases fired from a type of firearm, for example, the caliber and the number of lands and grooves on a bullet. Individual characteristics are microscopic markings produced in the manufacturing process by the random imperfections of tool surfaces (the constantly changing tool as described above) and by use of and/or damage to the gun post-manufacture. According to the theory of toolmark identification espoused by the Association of Firearms and Toolmark Examiners ("AFTE"), individual characteristics "are unique to that tool and distinguish it from all other tools." *Theory of Identification as it Relates to Toolmarks*, AFTE Journal, Vol. 30, No. 1, Winter 1998, at 87. Subclass characteristics generally fill the gap between the class and individual characteristics categories. They are produced incidental to manufacture but apply only to a subset of the firearms produced, for example, as may occur when a batch of barrels is formed by the same irregular tool.

Otero, 849 F. Supp. 2d at 427-28 (footnote omitted).

B. Suppression Hearing Testimony

At the *Daubert* hearing, three witnesses testified—VIPD Sergeant Richard Matthews, and VIPD Firearms Examiners Maurice Cooper and Reynold DeSouza. Matthews explained the chain of custody procedure followed by the VIPD when handling evidentiary items recovered at a crime scene; Cooper provided background on firearms and toolmark analysis, and the firearm

[3] A spent bullet usually has striated marks, created as it moves through the barrel of the gun. On the other hand, a spent cartridge case can have both impressed and striated marks. *United States v. Diaz*, 2007 WL 485967, at *1 (N.D. Cal. Feb. 12, 2007).

identification procedure followed by the VIPD; and DeSouza testified about the conclusions he reached in his reports which analyzed the ballistics evidence in this case.

1. Maurice Cooper

Maurice Cooper, a Forensic Science Consultant with the VIPD for the past six years, testified that prior to working in the Virgin Islands, he spent one year with the Forensic Science Center in Trinidad & Tobago. Before that, he worked for seven years as a Forensic Science Supervisor in the Firearms Unit of the Palm Beach, Florida Sheriff's Office, and prior to that he worked for fourteen years with the Indiana State Police in firearms and toolmark examination. (Statement of Qualifications, Ex. 31). He has attended numerous specialized training sessions in firearms and toolmark analysis, some of which were sponsored by AFTE, "the leading international organization for firearms and toolmark examiners." *Otero*, 849 F. Supp. 2d at 431. He asserted that, since 1985, he has been examining firearms with the aim of determining whether a bullet, cartridge case, or shell had been discharged from a particular firearm, and has worked on at least 100 cases per year. Cooper has testified as a firearms and toolmark expert over 300 times in local, state, and federal courts in Indiana, Florida, and the Virgin Islands, as well as in courts in Trinidad, Anguilla, and the British Virgin Islands. (Ex. 31). He stated he was not AFTE certified, but that certification was not necessary in order to be a qualified firearms examiner. The Court qualified Cooper as a firearms and toolmark expert for purposes of the *Daubert* hearing.

Cooper provided a powerpoint presentation on Firearm and Toolmark Identification produced by the Scientific Working Group for Firearms and Toolmarks ("SWGGUN").

(SWGGUN Powerpoint, Ex. 36).[4] The presentation explained the fundamentals of firearms identification using the method developed by AFTE, and summarized how the discipline allegedly satisfied the reliability prong of *Daubert.* Cooper explained that, when comparing two pieces of evidence recovered from a crime scene (bullets or cartridge cases, for example), a qualified examiner can analyze the patterns on the two items by using a comparison microscope and can reliably determine whether the markings match and originate with the same weapon. The comparison microscope consists of two microscopes connected by a single optical bridge that allows the two objects to be viewed simultaneously and on the same plane. The examiner will find a point of reference on each of the two items and determine if the pattern of striations or impressions is significant enough to conclude that they were fired from the same firearm. Cooper emphasized that he does not determine that there is a match based on finding a minimum number of matching striae, but rather looks for the reproduction of similar *patterns* on both pieces of evidence.

Cooper went on to say that the three conclusions a firearms examiner may reach are: identification, inconclusive, and elimination. Identification is defined by SWGGUN as follows: "If the quality and character of the toolmark have sufficient detail, an identification can be concluded based on the correspondence of individual characteristics." (Ex. 36). Under such circumstances, an examiner could conclude that bullets or cartridge cases came from the same firearm, or that bullets or cartridge cases came from a particular firearm. An inconclusive result would occur where, for example, the evidence is too damaged to conclude whether the

[4] Since the 1990s, the "FBI Laboratory has led the way in sponsoring Scientific Working Groups (SWG) to improve discipline practices and build consensus with our federal, state and local forensic community partners. Currently, the FBI Laboratory sponsors eight SWGs," one of which is SWGGUN, dedicated to firearms and toolmark analysis. SWGGUN.org, http://www.swggun.org/swg//AboutSWG's (last visited July 28, 2014).

components come from the same source. *See* Ex. 36 (defining inconclusive as: "If the quality and character of the toolmark are lacking, an examiner may not be able to make an identification or elimination. In this case, an inconclusive result would be the appropriate response."). Finally, an examiner might conclude that "[i]f significant disagreement in class characteristics exists, an elimination conclusion would be the appropriate response"—*i.e.*, the components did not come from the same source. (Ex. 36).[5]

Cooper acknowledged that the firearms identification process involves subjectivity on the part of an examiner in concluding whether there is a match, an inconclusive result, or an elimination.[6] He noted that if the evidence contains good quality information, then either an identification can be made or ruled out. However, if the quality is not good, then the examiner's experience comes to the fore. Cooper commented that inexperienced examiners may not feel qualified to make an identification when a more experienced examiner would; however, once a person is deemed qualified to do examinations, that person would be trained to a point where he or she would not make a false identification or a false exclusion. He likened the process to a doctor examining a patient, where the doctor's experience is involved in making a diagnosis.

---

[5] In *Diaz*, the court explained in greater detail the import of class characteristics:

> Class characteristics on a spent bullet or cartridge case allow an examiner to narrow the firearm possibilities to certain types of guns made by certain manufacturers. For a spent bullet, the class characteristics are the weight or caliber of the bullet, the number of lands and grooves, the twist of the lands and grooves, and the width of the lands and grooves. For example, a .9mm caliber bullet can only be fired by a .9mm caliber firearm. Additionally, if the bullet has six land and groove impressions, it can only have been fired from a gun barrel that has six lands and grooves.

United States v. Diaz, 2007 WL 485967, at *2 (N.D. Cal. Feb. 12, 2007).

[6] The "Identification Standard Summary" SWGGUN slide provides that "[i]n the application of the objective AFTE Theory of Identification Standard, a subjective determination must be made by a qualified examiner as to the amount of agreement necessary for an identification to exist." (Ex. 36).

Asked what evidence existed to support the science of firearms and toolmark identification, Cooper responded that many empirical and validation studies of consecutively manufactured tools have been published over the past fifty years. He cited by name a number of consecutive manufacture studies of gun barrels, breech and boltfaces, other firearm components, and other tools (also listed on the SWGGUN slides, Ex. 36). In illustrating his knowledge of these studies, he recounted that he was involved in reviewing the results of the consecutive manufacture study of gun barrels performed by Brundage in 1998, while he was working at the Indiana State Police Lab. The examiners at the lab reported to him that there was a problem: test-fire results from two consecutively made gun barrels showed that those barrels were identical—a result which was incompatible with the basic tenet of firearms identification that each gun has individual, distinguishing characteristics. His lab made further inquiries and determined that the Brundage lab tech had fired the same gun twice, rather than firing two separate guns, which had led to that result. Cooper claimed this story supported the underlying theory of firearms identification.

Cooper emphasized that firearms identification has been generally accepted as a discipline. Once again, he referred to the SWGGUN website which, he claimed, listed over one hundred courts where firearms and toolmark evidence has been accepted. The SWGGUN slides indicated that: "[n]umerous colleges & universities have courses in Firearm & Toolmark Identification" and named forty-two of them, mostly in the United States but also in the United Kingdom, Philippines, and Egypt; funding of scientific research has been granted to researchers outside the firearms and toolmark community, naming, *inter alia*, the National Institute of Justice in Washington, D.C. and the Canadian Police Research Centre in Ottawa, Canada; and firearms

and toolmark testimony has been accepted in courts for almost ninety years (including the 1921 Sacco-Vanzetti case). (Ex. 36).

With regard to peer review and publication in the firearms and toolmark identification discipline—where a firearms examiner would evaluate a colleague's research—the SWGGUN slides provided the names of three selected peer-reviewed journals: the *AFTE Journal*, published since 1969; the *Journal of Forensic Sciences*, published since 1942 by the American Academy of Forensic Sciences; and the *Journal of Forensic Identification*, published since 1988 by the International Association of Identification. (Ex. 36). Cooper also stated that, at the VIPD, he peer reviews DeSouza's work by checking his reports, photographs, and the entire case jacket, and he sometimes views the actual physical evidence under the microscope.

Asked whether he reviewed DeSouza's work in this case, Cooper responded that he had done so. In so doing, he had found an area where DeSouza had not completed the examination: DeSouza had compared a .38-caliber bullet (item 7) "fired from a firearm having conventional rifling with five lands and grooves and a right twist," and a copper-jacketed bullet retrieved from the victim's head "fired from a firearm having conventional rifling with a right twist" (item 39) to each other (Dkt. No. 33), but had not compared them to the test-fired bullet from the recovered firearm (item 25). Cooper told DeSouza to "go back and take another look." Cooper described DeSouza's failure to compare the bullets recovered from the crime scene and a test-fired bullet from the recovered firearm as an "oversight." He stated that he did not consider it a serious error, as the mistake was caught in peer review, and once DeSouza properly completed the examination, there was nothing wrong with the work product. Cooper admitted that DeSouza did not follow the protocol when he initially failed to compare items 7 and 39 to a bullet from the test-fired gun.

On cross-examination, Cooper agreed that one examiner may not see the number of marks on a piece of evidence that another examiner may see, and that there was no quantifiable number of marks that an examiner had to find to effect an identification. In articulating his conclusions, he stated that he finds a match to a "reasonable degree of certainty"; he did not recall if the guidelines required that he phrase his conclusions to "a reasonable degree of scientific certainty."

Cooper explained that the VIPD incorporated the firearms and toolmark examination protocols that he followed at the Indiana State Police Lab, which he updated when he worked in the Palm Beach Sheriff's Office. He claimed that the firearms examination guidelines designed for the Virgin Islands were as close as he could get them to the accredited, accepted examination protocols from other laboratories. Cooper indicated that VIPD protocols involve the use of a worksheet, on which the firearms examiner documents all the steps taken and measurements made during an examination. The VIPD had individual worksheets for examinations of firearm cartridges, bullets, and shells, and one for general notes.

Exhibit 37—seven pages of worksheets generated by DeSouza to describe the evidence he reviewed in this case—was admitted into evidence. The "Cartridge or Casing Worksheet" contains nineteen rows, labeled, *inter alia*, "headstamp," "case finish," "cannelure," "base to first," "firing pin shape," "breech face," and "case marks." (Ex. 37). The "Bullet Worksheet" contains twenty-one rows labeled, *inter alia*, "caliber," "diameter," "lands & grooves," "direction of twist," "land impression," "groove impression," "weight," "bullet design," and "damage." *Id.* The "Firearm Worksheet" contains boxes that require the examiner to describe, *inter alia*, the "cartridge designation," "make," "model," "capacity," "barrel length," "land & grooves rifling type," "firing pin," and whether the firearm was test fired. *Id.* The "Microscopic

Examination Cartridge Case" Worksheet requires the examiner to record the exhibit numbers of the recovered cartridge cases; indicate the condition of the firing pin, shear, breech, ejector, extractor, and body; and list the results. *Id.* All of the worksheets contain an area for remarks where DeSouza placed his conclusions. For example, on the Cartridge or Casing Worksheet, DeSouza noted: "A test to test was conducted on TF1 and TF2 [test-fire 1 and test-fire 2] and there w[as] sufficient agreement of individual marks and firing pin impression[s] to [e]ffect an identification." *Id.* According to Cooper, if a problem develops during the examination, another firearms examiner would be able to check the notes and determine what had occurred. Cooper acknowledged that, other than filling out the worksheet, an examiner is not required to document what he did during the examination.

Cooper was asked about the error rate in firearm identifications. He responded that, years ago, Collaborative Testing Services ("CTS")—a company that evaluates laboratory testing—found an error rate of one to two percent in firearms and toolmark examinations.[7] AFTE investigated this high error rate and determined that CTS: (1) had not evaluated each test before it was sent out; (2) had trainees rather than qualified firearms examiners conducting the tests; and (3) eliminated a firearm based upon a difference in individual characteristics, while Cooper and AFTE believed in eliminating a firearm based only on a difference in class characteristics. Cooper referred to the SWGGUN slides that showed that AFTE subsequently conducted thirteen validity studies and found error rates averaging close to zero when performed by properly trained and qualified examiners. (Ex. 36).

[7] The SWGGUN slides show that CTS error rates during 1992-2000 and 2003 were: firearms false positive: 1.9%; firearms false negative: 0.4%; toolmark false positive: 2.2%; and toolmark false negative: 2.0%. (Ex. 36, citing Doug Murphy, "Firearms—Toolmarks Error Rate Computation and Analysis," presentation at AFTE Training Seminar, June 2006).

2. Reynold DeSouza

Reynold DeSouza received an Associate's Degree in Crime Scene Technology from St. Petersburg College, Florida in 2003, and a Bachelor's Degree in Criminology from the University of South Florida in 2008. (Ex. 32, Statement of Qualifications). He testified that he had been employed by the VIPD for five years as a Firearms and Toolmark Examiner. He began his training in 2009 with Mr. Cooper, and worked with him until 2010 when he was selected to attend the National Firearms Examiner Academy ("NFEA") in Maryland, sponsored by the Bureau of Alcohol, Tobacco, and Firearms ("ATF"). At the NFEA, DeSouza learned the basic procedures of comparing bullets, cartridges, and cases, and visited numerous manufacturing facilities where firearms are made. After graduating from NFEA in September 2011, DeSouza returned to the Virgin Islands and continued his training under Cooper's supervision. He subsequently attended ATF training seminars in Buffalo, New York and Albuquerque, New Mexico.

DeSouza stated that, since September 2011, he has conducted approximately 50-60 firearms examinations per year with the VIPD. He has testified as an expert in District Court on St. Croix (concerning the function testing of a firearm) and twice in the Superior Court of the Virgin Islands, St. Croix Division. The Court granted the Government's motion allowing DeSouza to testify as a firearms and toolmark expert for purposes of the *Daubert* hearing.

DeSouza described the procedure he follows when examining firearms. After signing for and receiving the evidence from the VIPD property clerk, he documents his examination by filling out the VIPD worksheets. In this case, he completed seven pages of worksheets (Ex. 37), the results of which were incorporated into his May 22, 2012 report (Ex. 33). The report contained the results stemming from DeSouza's examination of twenty-one pieces of evidence

(cartridge cases from an unrecovered .40 caliber Smith & Wesson firearm and from a 9mm Luger firearm; the recovered 9mm firearm itself; and .38 and .40 caliber bullets). He test fired the recovered gun and compared the test fired bullets and cartridge cases with the other .38 caliber recovered evidence. Using the comparison microscope, he also compared the test fired .38 caliber cartridge case to the recovered items (items 1, 2, 3, 18, 20, and 22) and concluded that there was "sufficient agreement of individual marks and firing pin impressions" and that they were "fired [from] the same firearm." (Ex. 33). In addition, he compared the .40 caliber Smith & Wesson cartridge cases to each other (items 4, 5, 6 8, 9, 10, 13, 19 and 21) and concluded that there was "sufficient agreement of individual marks and firing pin impressions" and that they were "fired [from] the same firearm." (Ex. 33). With regard to two bullets (items 7 and 39), he compared them to each other but could not find sufficient agreement of the individual marks and termed his result inconclusive as to whether they were fired from the same firearm. *Id.* DeSouza produced seven pages of 8½ x 11 photographs that he took of some of the bullets and cartridge cases, as seen on the comparison microscope, which were admitted into evidence. (Ex. 38). DeSouza pointed to the specific areas on the photographs where the striations matched to show how he made his identifications.

As indicated above, Cooper peer reviewed DeSouza's May 22 report and noticed that DeSouza had compared items 7 and 39 to each other but had not compared them to the test fired bullets from the recovered firearm, and instructed him to complete that step. After doing so, DeSouza issued his June 8 report which repeated all of his conclusions in his May 22 report verbatim except for his findings concerning items 7 and 39. He wrote, "[t]he bullet in exhibit 7 & 39 were compared to test fired [bullets] and there were sufficient agreement of individual marks.

I concluded that they were fired [from] the same firearm the Smith & Wesson (USA) Model 459, 9mm Parabellum, Semi Automatic Pistol." (Ex. 34).

On cross-examination, DeSouza stated he reviewed the VIPD protocols concerning firearms examination in 2009, but could not recall if he had reviewed any updated protocols since then. He did not refer to the protocols when he conducted his examination, but relied upon the knowledge he gained in 2009. He also stated that he did not know the protocol that Cooper employed in peer reviewing his work. He acknowledged that comparing bullets with a known test sample from the firearm was part of the protocol, and the fact that he did not follow it in this instance was an "oversight." Asked whether he was required to continue to qualify to maintain the certification he received after graduating from the NFEA Academy, DeSouza answered that he knew only that he was supposed to attend conferences every year, which he has done. He is currently a provisional member of AFTE.

DeSouza did not agree with defense counsel's suggestion that he and Cooper performed their firearms examinations differently. DeSouza stated that the protocols were basically the same since they both were required to follow the worksheets that document everything about the firearm. He would ask Cooper to look at cartridge cases in a microscope, for example, and after Cooper came to his own conclusions as to whether there was an identification, they would discuss the areas where they found sufficient agreement. There was no documentation, however, that they looked at the same area, or that he found a given number of striations to make an identification and the area in which he found them.

3. Richard Matthews

Sgt. Richard Matthews, a nineteen-year veteran of the VIPD, testified as to how VIPD forensic technicians and police officers collect and preserve evidence and create reports. He also testified regarding the VIPD's chain of custody procedure for crime scene evidence.

III. APPLICABLE LEGAL PRINCIPLES

"Under the Federal Rules of Evidence, a trial judge acts as a 'gatekeeper' to ensure that 'any and all expert testimony or evidence is not only relevant, but also reliable.'" *Pineda v. Ford Motor Co.*, 520 F.3d 237, 243 (3d Cir. 2008) (quoting *Kannankeril v. Terminix Int'l, Inc.*, 128 F.3d 802, 806 (3d Cir. 1997) (citing *Daubert*, 509 U.S. at 589). The Rules of Evidence "embody a strong and undeniable preference for admitting any evidence which has the potential for assisting the trier of fact." *Kannankeril*, 128 F.3d at 806; *see also* Fed. R. Evid. 401 (defining "relevant evidence," which is generally admissible, to mean "evidence having any tendency to make the existence of any fact that is of consequence to the determination of the action more probable or less probable than it would be without the evidence."). In that regard, Rule 702, "which governs the admissibility of expert testimony, has a liberal policy of admissibility." *Kannankeril*, 128 F.3d at 806.

Rule 702 provides:

> 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.

Fed. R. Evid. 702. The Third Circuit has opined that Rule 702 has "three major requirements: (1) the proffered witness must be an expert, *i.e.*, must be qualified; (2) the expert must testify about

matters requiring scientific, technical or specialized knowledge; and (3) the expert's testimony must assist the trier of fact." *Pineda*, 520 F.3d at 244 (citing *Kannankeril,* 128 F.3d 806). The Third Circuit's shorthand for this three-part test that must be satisfied before an expert may testify is: qualification, reliability, and fit. *Schneider ex rel. Estate of Schneider v. Fried*, 320 F.3d 396, 404 (3d Cir. 2003). "The party offering the expert must prove each of these requirements by a preponderance of the evidence." *Mahmood v. Narciso,* 549 F. App'x 99, 102 (3d Cir. 2013) (citing *In re TMI Litig*., 193 F.3d 613, 663 (3d Cir. 1999)). The "rejection of expert testimony is the exception and not the rule." Fed. R. Evid. 702 Advisory Committee Notes to 2000 Amendments.

A. Qualifications

The qualifications requirement mandates '"that the witness possess specialized expertise.'" *Pineda,* 520 F.3d at 244 (quoting *Schneider*, 320 F.3d at 404). The Third Circuit "ha[s] interpreted Rule 702's qualification requirement liberally." *Id.* (citing *Schneider*, 320 F.3d at 404 and *In re Paoli R.R. Yard PCB Litig*., 35 F.3d 717, 741 (3d Cir. 1994)). A "broad range of knowledge, skills, and training qualify an expert." *In re Paoli*, 35 F.3d at 741. Further, practical experience can be the basis of "specialized knowledge" for purposes of qualifying an individual as an expert. *See Betterbox Commc'ns, Ltd. v. BB Techs., Inc.*, 300 F.3d 325, 327-28 (3d Cir. 2002). The Third Circuit has opined that

> [b]ecause of our liberal approach to admitting expert testimony, most arguments about an expert's qualifications relate more to the weight to be given the expert's testimony than to its admissibility. Thus, witnesses may be competent to testify as experts even though they may not, in the court's eyes, be the 'best' qualified. Who is 'best' qualified is a matter of weight upon which reasonable jurors may disagree.

Holbrook v. Lykes Bros. S.S. Co., Inc., 80 F.3d 777, 782 (3d Cir. 1996). Insistence "on a certain kind of degree or background" is inconsistent with Circuit jurisprudence on the qualification prong for expert testimony. *In re Paoli R.R. Yard PCB Litig.*, 916 F.2d 829, 855 (3d Cir. 1990).

B. Reliability

The Third Circuit has interpreted the reliability requirement "to mean that 'an expert's testimony is admissible so long as the process or technique the expert used in formulating the opinion is reliable.'" *Pineda* 520 F.3d at 244 (quoting *Kannankeril*, 128 F.3d at 806). The testimony

> must be based on the methods and procedures of science rather than on subjective belief or unsupported speculation; the expert must have good grounds for his or her belief. In sum, *Daubert* holds that an inquiry into the reliability of scientific evidence under Rule 702 requires a determination as to its scientific validity.

Schneider, 320 F.3d at 404 (internal quotation marks omitted).

"While a litigant has to make more than a prima facie showing that his expert's methodology is reliable . . . '[t]he evidentiary requirement of reliability is lower than the merits standard of correctness.'" *Pineda*, 520 F.3d at 247 (quoting *In re Paoli*, 35 F.3d at 744). The Third Circuit has recognized at least eight factors that a court may consider in assessing whether a particular methodology is reliable:

> (1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Id. at 247-48 (citing *In re Paoli*, 35 F.3d at 742 n.8). These factors "are neither exhaustive nor applicable in every case." *Kannakeril*, 128 F.3d at 806-07. "The District Court has broad discretion in determining the admissibility of evidence, and 'considerable leeway' in determining

the reliability of particular expert testimony under *Daubert*." *Simmons v. Ford Motor Co.*, 132 F. App'x 950, 952 (3d Cir. 2005) (quoting *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 152-53 (1999)).

"[T]he reliability analysis [required by *Daubert*] applies to all aspects of an expert's testimony: the methodology, the facts underlying the expert's opinion, [and] the link between the facts and the conclusion." *Heller v. Shaw Indus., Inc.*, 167 F.3d 146, 155 (3d Cir. 1999). In *In re Paoli*, the Third Circuit clarified that "if a court finds that an expert has employed a methodology only slightly different from a methodology that the court thinks is clearly reliable, the court should be more likely to accept the altered methodology than if it was evaluating that methodology as an original matter." *In re Paoli*, 35 F.3d at 745 n.14. A judge should only exclude evidence if the flaw is large enough that the expert lacks "good grounds for his or her conclusions." *Id.* at 746. Further, the proponent of the evidence does not have to demonstrate that the assessments of the expert are correct—they only have to demonstrate by a preponderance of the evidence that their opinions are reliable. *Id.* at 744. '"The analysis of the conclusions themselves is for the trier of fact when the expert is subjected to cross-examination."' *Oddi v. Ford Motor Co.*, 234 F.3d 136, 146 (3d Cir. 2000) (quoting *Kannankeril*, 128 F.3d at 806); s*ee also Keller v. Feasterville Family Health Care Ctr.*, 557 F. Supp. 2d 671, 679 (E.D. Pa. 2008) ("Any weaknesses or inadequacies [plaintiff] believes exist with the fact and assumptions of [defendant's expert's] conclusions can be highlighted through effective cross-examination.").

C. Fit

The third requirement under Rule 702—whether the expert testimony would assist the trier of fact—"goes primarily to relevance." *Daubert*, 509 U.S. at 591. This requirement mandates that:

> [T]he expert testimony must fit the issues in the case. In other words, the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact. The Supreme Court explained in *Daubert* that 'Rule 702's 'helpfulness' standard requires a valid scientific connection to the pertinent inquiry as a precondition to admissibility.'

Schneider, 320 F.3d at 404 (quoting *Daubert*, 509 U.S. at 591-92).

IV. DISCUSSION

A. Qualifications of Reynold DeSouza

DeSouza testified that he has been working in the field of firearms and toolmark identification since 2009. He trained at the VIPD with Maurice Cooper—a firearms examiner with more than twenty-six years of experience in the field—from 2009 to 2011. He was then selected to attend the National Firearms Examiner Academy where he received specialized training in firearms and toolmark examination until his graduation in September 2011. Since then, DeSouza has continued to work under Cooper's supervision, and has performed approximately fifty to sixty firearms and toolmark examinations per year. He has attended two AFTE training conferences and is a provisional member of AFTE. (Ex. 32).

While DeSouza clearly does not have the same level of experience and training as a firearms and toolmark examiner as Cooper, *Daubert* does not require that he be the best qualified firearms examiner to give his expert opinion. See *Holbrook*, 70 F.3d at 782 ("[W]itnesses may be competent to testify as experts even though they may not, in the court's eyes, be the 'best' qualified. Who is 'best' qualified is a matter of weight upon which reasonable jurors may disagree."). Defendant Wrensford questions DeSouza's knowledge of the field—for example, whether he understands how to distinguish between subclass and individual characteristics—and emphasizes that he made a "major mishap" in his analysis. However, these actual or perceived shortcomings in DeSouza's knowledge and technique "are classic subjects of cross-examination

and go to the weight that a fact-finder should place on his opinions, not the reliability or admissibility of those opinions under *Daubert*." *Brown v. Kia Motors Corp.*, 2009 WL 866846, at *7 (W.D. Pa. Mar. 30, 2009) (discussing that facts plaintiff's expert did not know about a crash would be fleshed out during cross-examination); s*ee also SR Int'l Bus. Ins. Co., Ltd. v. World Trade Ctr. Props., LLC*, 467 F.3d 107, 134 (2d Cir. 2006) (stating that gaps or inconsistencies in an expert's testimony concern the weight of the evidence and not its admissibility); *Skycam, LLC v. Bennett*, 2013 WL 5328937, at *9 (N.D. Okla. Sept. 20, 2013) (finding that shortcomings in expert's qualifications and methodology would be explored on cross-examination and went to weight of his opinions rather than admissibility). This result comports with *Daubert's* liberal outlook on the admissibility of evidence: "Vigorous cross-examination, presentation of contrary evidence, and careful instruction on the burden of proof are the traditional and appropriate means of attacking shaky but admissible evidence." *Daubert*, 509 U.S. at 596.

Wrensford also argues that DeSouza should not be qualified as an expert because this would be only the second or third case in which he would so qualify. This position finds no support in the case law. In *Demouchette v. Dart*, 2012 WL 6568232, at *8 (N.D. Ill. Dec. 14, 2012), the court observed: "[t]he issue of whether a court has previously qualified [a particular person] as an expert is irrelevant to a determination of whether he has the necessary knowledge, skill, experience, training or education to qualify him as an expert under Rule 702." (quoting *Catapult Comm'cns Corp. v. Foster*, 2010 WL 659072, at *2 (N.D. Ill. Feb. 19, 2010) ("The mere fact that [a proposed expert] never has been retained as an expert is irrelevant. By that logic, *no witness* could ever qualify as an expert for the first time because that would require being retained *previously* as an expert.")).

The Court finds that DeSouza possesses specialized expertise in firearms examination, *Schneider*, 320 F.3d at 404, gained from his years of tutelage under Cooper, his training at NFEA and AFTE conferences, and his experience in firearms examination. *See* Fed. R. Evid. 702 advisory committee note (noting that the "text of Rule 702 expressly contemplates that an expert may be qualified on the basis of experience."). His knowledge "will assist the trier of fact to understand or determine a fact in issue" in this case—for example, whether some of the bullets and cartridge cases were fired from the recovered gun and whether certain shells recovered from the crime scene and the recovered pick-up truck were discharged from the same un-recovered gun. *Daubert*, 509 U.S. at 592. The Court concludes that DeSouza is qualified to offer his opinion as a firearms and toolmark expert in this case.

B. Reliability

Applying the factors articulated by the Supreme Court in *Daubert* and by the Third Circuit in *Pineda* to the evidence presented at the hearing, the Court finds that the process used by DeSouza in formulating his opinion is reliable.

1. Testable Hypothesis

Cooper and DeSouza testified that they employed the theory of toolmark identification adopted by AFTE which "permits an examiner to conclude that two bullets or two cartridges are of common origin, that is, were fired from the same gun, when the microscopic surface contours of their toolmarks are in 'sufficient agreement.'" *Otero*, 849 F. Supp. 2d at 431. During the hearing, neither Cooper nor DeSouza defined "sufficient agreement," although the SWGGUN slides referred to the term. (Ex. 36).[8] Wrensford's challenge to the field rests primarily on the

[8] The slides provide two "Objectively stated AFTE Identification Standards." The first one provides::

fact that, because the AFTE theory relies on an examiner's subjective assessment of whether or not there is a match, the discipline is not scientifically objective and is thus unreliable. This subjectivity argument touches upon two *Daubert* factors—whether the theory espoused by AFTE and followed here can be tested, and whether there are standards controlling the technique's operation.

The issue of "subjectivity" in firearms analysis has been thoroughly examined in other court opinions, and this Court finds the reasoning in those cases both instructive and persuasive. In *Otero*, the court quoted an article by Richard Grzybowski, "Firearm/Toolmark Identification: Passing the Reliability Test Under Federal and State Evidentiary Standards," *AFTE Journal*, Vol. 35, No. 2, Spring 2003, for the AFTE definition of significant agreement:

> 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.

Otero, 849 F. Supp. 2d at 431 (quoting Grzybowski at 212). The court in *Otero* went on to say that 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." *Id.* at 432. The court discussed validation studies of breechface marks on cartridge

---

> The Theory of Identification as it pertains to the comparison of toolmarks enables opinions of common origin to be made when unique surface contours of two toolmarks are in 'sufficient agreement.'

The second slide provides:

> Agreement is significant when it exceeds the best agreement demonstrated between toolmarks known to have been produced by different tools and is consistent with the agreement demonstrated by toolmarks known to have been produced by the same tool.

(Ex. 36).

cases, consecutively manufactured barrels, and bullets, all of which have tested the theory that "one can individualize tools, even when comparing marks made by tools of the greatest possible similarity, such as those involved in the consecutive manufacture of various firearms of the same make." *Id.* For example, the validation study of bullets concluded that "sufficient individual characteristics persisted to permit a positive identification" after 501 rounds of ammunition were fired from the same pistol, although noting that the marks tended to "erode with each successively fired bullet." *Id.* (citing Robert J. Shem, Comparison of 501 Consecutively Fired Bullets and Cartridge Cases from a 25 Caliber Raven Pistol, *AFTE Journal*, Vol. 15, No. 3). After reviewing these studies, the court found that although the comparison methodology and the 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.* at 433. The Third Circuit affirmed the district court's opinion which analyzed the testimony of the government's ballistics expert against each *Daubert* factor and found that the testimony was both relevant and reliable, even with the inherent subjectivity involved in the analysis. *Otero*, 557 F. App'x at 149.[9]

[9] During the *Daubert* hearing, Wrensford argued that the *Otero* Court did not generally accept firearms and toolmark identification as a science. The defendants in *Otero* challenged the Government's expert testimony as lacking a scientific basis by pointing to certain reports that identified deficiencies in forensic sciences. The court noted that it "expresse[d] *no opinion* on whether the practice of firearms and toolmark identification constitutes a 'scientific' discipline because that is not the question before the Court." *Otero*, 849 F. Supp. 2d at 431 (emphasis added). Instead, the court considered "whether the Government's proffered expert opinion is reliable, according to the principles of *Kumho Tire*," and so found. *Id.*

In *Kumho Tire Co. Ltd. v. Carmichael*, 526 U.S. 137 (1999), the Supreme Court held that *Daubert's* principles apply not just when courts evaluate the admissibility of scientific expert testimony, but also when assessing testimony based on "technical" and "other specialized" knowledge. *Id.* at 141 (citing Fed. R. Evid. 702). In so holding, the Court emphasized that the issue surrounding admissibility of expert testimony was not whether some field was considered a science, but whether the testimony conformed to a "standard of evidentiary reliability." *Id.* at

This result has been echoed in other cases. For example, in *Montiero*, the court found that, even though the process of rendering an opinion "is primarily subjective and based on the expertise of the examiner, the existence of the requirements of peer review and documentation ensure sufficient testability and reproducibility to ensure that the results of the technique are reliable." *United States v. Montiero*, 407 F. Supp. 2d 351, 369 (D. Mass. 2006); *see also Diaz*, 2007 WL 485967, at *5 (concluding that "the theory of firearms identification, though based on examiners' subjective assessment of individual characteristics, has been and can be tested. Importantly, the literature from the field demonstrates that the traditional pattern matching theory has been tested—and verified—for the decades that firearms examination has been in existence.").

Here, Cooper referred to numerous validation studies concluding that, despite the subjectivity involved in the analysis, the underlying theory of firearms identification is testable and the results have been verified. *See id.* at *5 ("The critique that firearms identification is ultimately subjective . . . is not enough to render the theory not 'testable.'"). Based on the record here, this Court joins the *Otero* Court and the other courts that have found that the theory of firearms identification consists of a testable hypothesis, notwithstanding the inherent subjectivity involved in the approach.[10] Based on the record here, this *Daubert* factor weighs in favor of admissibility.

---

149. That *Otero* pointed out the proper focus for evaluating the admissibility of expert testimony under *Daubert* and *Kumho Tire* is not contrary to, but rather supports the Court's analysis and conclusions here.

[10] Wrensford cites certain cases where courts limited the degree of certainty with which experts could testify to an identification, but did not find the discipline unreliable. *See, e.g., United States v. Montiero*, 407 F. Supp. 2d 351, 372 (D. Mass. 2006); *United States v. Green*, 405 F. Supp. 2d 104, 123-24 (D. Mass. 2005). Thus, these cases do not alter the Court's conclusion here.

2. Peer Review

This *Daubert* factor focuses on whether the methodology employed by firearms and toolmark examiners is subject to peer review. The SWGGUN slide entered into evidence listed three peer-reviewed journals: the *AFTE Journal*, the *Journal of Forensic Sciences*, and the *Journal of Forensic Identification*, all of which have been publishing for decades. With regard to the *AFTE Journal*, courts have found that AFTE theory is "subject to peer review through submission to and publication by the *AFTE Journal* of validation studies which test the theory." *Otero*, 849 F. Supp. 2d at 433. Not only does the journal have a formal submission process, but there is also "a formal post-publication peer review process, allowing AFTE members and any other interested individuals to comment on previously published articles." *Id.* Many of the validation studies cited in *Otero* were published in the *AFTE Journal*. *See also Diaz*, 2007 WL 485967, at *6 (finding *AFTE Journal* has always had a peer review process, and that other peer reviewed literature generally supports the AFTE theory of identification); *United States v. Taylor*, 663 F. Supp. 2d 1170, 1176 (D.N.M. 2009) (citing *AFTE Journal* and *Journal of Forensic Science* as two peer-reviewed publications on the subject of firearm and toolmark examination). Wrensford does not challenge this *Daubert* factor, and the Court finds that the Government has presented evidence in support of this factor.

3. General Acceptance

Citing the SWGGUN website, Cooper stated that firearms and toolmark identification has been generally accepted in numerous courts. The SWGGUN slides refer to forty-two colleges and universities in the United States and abroad that teach courses on firearms and toolmark identification, and note that the field has been accepted in court testimony for almost 90 years. (Ex. 36).

This evidence comports with findings in other courts that have examined this *Daubert* factor and found that firearms and toolmark identification is generally accepted. *See Melcher v. Holland*, 2014 WL 31359, at *12 (N.D. Cal. Jan. 3, 2014) ("expert evidence on toolmark and firearm identification evidence is universally admissible. . . . Expert testimony identifying a particular weapon as the same source of a questioned crime scene bullet and known bullets from test firings is admissible in every American jurisdiction."); *Otero*, 849 F. Supp. 2d at 435 (stating that courts have observed that the AFTE theory of firearms and toolmark identification is "widely accepted in the forensic community"); *Diaz*, 2007 WL 485967, at *11 (concluding that AFTE theory of pattern matching "appears to have broad acceptance in the forensic community. There has been no critique sufficient to undermine the traditional examination method as it is performed by competent, trained examiners."); *United States v. Green*, 405 F. Supp. 2d 104, 108 (D. Mass. 2005) ("*every single court* post-*Daubert* has admitted this [firearms identification] testimony, sometimes without any searching review, much less a hearing.").

Wrensford acknowledges, as he must, that the current state of the case law shows that the field of firearms and toolmark identification is generally accepted under *Daubert*. He nevertheless asserts that, particularly during 2004-2009, courts questioned the field and in some cases limited the degree of certainty with which experts could state their conclusions.[11] He adds

[11] A number of courts confronted with examiners whose methodology was questionable, or with serious questions concerning the subjectivity of the analysis, have imposed limitations on the degree of confidence with which the expert may opine. In *Green*, for example, an examiner failed to take measurements altogether—he had no notes, drawings or photographs of the evidence he examined—and his work was not peer reviewed. Nevertheless, he concluded that the shell casings at the crime scene came from a particular pistol, and this match could be made "to the exclusion of every other firearm in the world." *Green*, 405 F. Supp. 2d at 107. While the Court acknowledged the widespread acceptance of ballistics testing, it refused to allow the expert's conclusion that the degree of certainty of the match was to "the exclusion of all other guns" as the source of the shell casings, but permitted him to testify about his observations. *Id.* at 124; *see also Taylor*, 663 F. Supp. 2d at 1180 (concluding that firearms identification testimony

that this Court can assess those cases and exercise its discretion as to whether it will accept this field. In view of the evidence presented and in accord with the conclusions of other courts, the Court finds that firearms and toolmark examination is generally accepted, and that the "generally accepted" *Daubert* factor weighs in favor of admissibility.

4. Standards Controlling the Technique's Operation

Cooper testified that he implemented at the VIPD—and updated—the firearms and toolmark examination protocols that he first followed at the Indiana State Police Lab. He described the VIPD protocol as requiring the examiner to extensively document his measurements, observations, and conclusions on separate worksheets for firearm cartridges, bullets, and shell cases. (Ex. 37). The VIPD protocol also involves photographing the evidence as it appears on the comparison microscope which could be used to show where the identification was made (Ex. 38), and peer review of the conclusions reached by an examiner.

---

was admissible but, because of limitations on the reliability of that evidence, expert "will not be permitted to testify that his methodology allows him to reach this conclusion as a matter of scientific certainty," but only that "in his opinion, the bullet came from the suspect rifle to within a reasonable degree of certainty in the firearms examination field."); *Diaz*, 2007 WL 485967, at *11 (because evidence did not support the theory that examiner can conclude that a bullet or case was fired by a particular firearm to the exclusion of all other guns in the world, the court permitted the expert to testify that "cartridge cases or bullets were fired from a particular firearm 'to a reasonable degree of ballistic certainty.'"); *United States v. Glynn*, 578 F. Supp. 2d 567, 574-75 (S.D.N.Y. 2008) (refusing to permit firearms examiner's conclusion "to a reasonable degree of ballistic certainty" as a result of the subjectivity and non-quantifiable nature of the discipline, but permitting testimony that a firearms match was "more likely than not").

Here, DeSouza concluded in his reports that there was "sufficient agreement of individual marks and firing pin impressions to affect an identification," and that, with regard to items 7 and 39, there was "sufficient agreement of individual marks" compared to the test fired bullets, such that he "concluded that they were fired [from] the same firearm." (Ex. 34). The Court will permit DeSouza to testify to his conclusions as written in his reports. *See In re Paoli*, 35 F.3d at 751 ("Rules 702 and 703 . . . require a reliable methodology and reliable data but nowhere require a reasonable degree of medical certainty.") (citing *United States v. Cyphers*, 553 F.2d 1064, 1072 (7th Cir. 1977) (upholding district court's admission of expert testimony that was not based on reasonable scientific certainty)).

Wrensford has not shown that the protocol followed produced flaws so large that DeSouza lacked "good grounds for his . . . conclusions" warranting exclusion of the evidence. *In re Paoli*, 35 F.3d at 746.[12] In fact, documentation (including photographs) and peer review, which was part of the analyses conducted by DeSouza, comport with industry standards for firearms examination. *See Monteiro*, 407 F. Supp. 2d at 369 (opining that "the requirements of documentation and peer review of examiners' results are industry standards which help to ensure reliability and testability of the expert opinion" and that "AFTE standards of documentation and peer review were adopted by the ballistics industry to ensure the reliability of test results and examiners at a minimum must comply with them."); *Otero*, 849 F. Supp. 2d at 434-35 (stating that AFTE standard requires comparison with test-fired components and that "peer review of each examination . . . [should] be conducted by another firearms examiner to ensure the integrity of the examination process and accurate results."); *Taylor*, 663 F. Supp. 2d at 1176 ("[I]ndustry standards generally require an examiner to document in detail, through note-taking and photographs, the basis for his findings. . . . [I]ndustry standards require confirmation by at least one other examiner when the first examiner reaches an identification.").

Wrensford contends that DeSouza's report is unreliable because of the manner in which DeSouza applied—or, rather, failed to apply—the firearms identification protocols when he did

[12] Wrensford claims that Cooper should have documented that DeSouza did not follow the protocol, and that an "independent person" should have reviewed his conclusions. *Daubert* does not require such a showing. While other protocols may have additional requirements, the fact that such procedures were not used "is not sufficient to deem the method employed here as unreliable." *United States v. Williams*, 2008 WL 5382264, at *17 (C.D. Cal. Dec. 23, 2008); *see also Kannankeril*, 128 F.3d at 806 (opining that "*Daubert* does not set up a test of which opinion has the best foundation, but rather whether any particular opinion is based on valid reasoning and reliable methodology."). Wrensford also urges the Court not to believe Cooper's and DeSouza's testimony because there was insufficient documentation and "we don't know what else went wrong" in the firearms analysis. Determining credibility is the job of the fact-finder and does not factor into the reliability analysis. *Id.* ("Admissibility decisions focus on the expert's methods and reasoning; credibility decisions arise after admissibility has been determined.").

not compare items 7 and 39 with test fired bullets from the recovered gun. DeSouza and Cooper termed that failure an "oversight," while Wrensford described it as a "major mistake" that undermined everything DeSouza did.

The Court agrees that it is difficult to imagine how a firearms examiner who had been under the tutelage of a veteran in the field for over three years, who graduated from the NFTE Academy, and who has conducted 50-60 firearms and toolmark examinations per year, could have made such an elementary mistake as DeSouza did in failing to compare items 7 and 39 with test fired bullets. Nevertheless, even crediting Wrensford's position that this failure to follow the protocol was a "major mistake," it was caught during the peer review process and addressed in DeSouza's subsequent report. The fact that DeSouza erred in his examination—particularly where the error was found and rectified—is not grounds for finding that his application of the methodology was unreliable. To the contrary,

> *Daubert* does not require that an expert's testimony be excluded simply because he admitted and corrected his own mistakes. . . . In fact, one of the very purposes of a *Daubert* hearing. . . is to give experts a chance to explain and even correct errors that they made in their reports. . . . There is no stigma attached to such error correction, nor should there be. If anything, it strengthens the quality of the expert report.

I.B.E.W. Local Union 380 Pension Fund v. Buck Consultants, 2008 WL 2265269, at *2 (E.D. Pa. June 3, 2008) (internal quotation marks omitted).

Wrensford has also raised the subjectivity argument in the context of this *Daubert* factor. Courts have acknowledged this issue, finding that the AFTE "sufficient agreement" criteria "does not provide any uniform numerical standard examiners can use to determine whether or not there is a match" and therefore a conclusion that there is a match is "necessarily a subjective one, . . . 'held in the mind's eye of the examiner and. . . based largely on training and experience in observing the difference between known matching and known non-matching impression

toolmarks.'" *Taylor*, 663 F. Supp. 2d at 1177 (quoting *Monteiro*, 407 F. Supp. 2d at 362-63). Despite the subjectivity inherent in the AFTE standards, courts have nevertheless uniformly accepted the methodology as reliable, albeit sometimes with limitations. *See United States v. Glynn*, 578 F. Supp. 2d 567, 571, 574 (S.D.N.Y. 2008) (although ballistics opinions may be subjective and vague, the basic assumptions of ballistics identification are valid and "its methodology has garnered sufficient empirical support as to warrant its admissibility"); *Diaz*, 2007 WL 485967, at *1 (noting that "[w]hile there is some subjectivity involved, it is the subjective judgment of trained professionals with a keen practiced eye for discerning the extent of matching patterns" and finding AFTE theory of firearms identification reliable); *Monteiro*, 407 F. Supp. 2d at 371 (addressing whether method that relies on individual examiner's training and experience to distinguish between characteristics on cartridge casing is fatal to the reliability of the technique as a whole, and concluding that "the trained eye will be able to distinguish among the class, subclass, and individual characteristics produced by the firearms") (citing *United States v. Llera Plaza*, 188 F. Supp. 2d 549, 570 (E.D. Pa. 2002) for the proposition that "there are many situations in which an expert's manifestly subjective opinion (an opinion based on 'one's personal knowledge, ability, and experience') is regarded as admissible evidence in an American courtroom.").

Daubert demands that an expert's "knowledge connotes more than subjective belief or unsupported speculation." *Daubert*, 509 U.S. at 590. Although the AFTE identification theory involves subjectivity, its underlying foundation confirms that it does not involve the kind of "subjective belief or unsupported speculation" that runs afoul of *Daubert*. In line with the weight of the case law, the Court finds that the subjectivity inherent in firearms examination is not a bar to its admissibility under the *Daubert* prong pertaining to standards controlling the technique's

operation. Accordingly, the Court concludes that the "existence and maintenance of standards controlling the technique's operation" factor weighs in favor of admissibility.

5. The Relationship of the Technique to Methods which Have Been Established to be Reliable

Defendant did not challenge this prong of the *Daubert* reliability test.

6. The Qualifications of the Expert Witness Testifying Based on the Methodology

As noted above, and for the reasons previously stated, the Court has concluded that DeSouza's knowledge, experience, and training qualify him to testify as an expert using the methodology described for firearms analysis. The fact that DeSouza did not compare the recovered bullets to the test fired bullet when he completed his first report may be appropriate fodder for cross-examination, but does not bar the admissibility of the evidence based on the qualifications prong of *Daubert*. Accordingly, this factor weighs in favor of admissibility.

7. Non-Judicial Uses of the Method

Cooper asserted that firearms analysis has been put to non-judicial uses. In this regard, he mentioned that firearms examination has been used in administrative proceedings to identify, for example, which security guard had fired a gun on the job. The Court does not consider the use of firearms examinations in such administrative proceedings as the kind of "non-judicial use" contemplated by this *Daubert* factor. *See United States v. Mitchell*, 365 F.3d 215, 242-43 (3d Cir. 2004) (opining that "non-judicial use of a technique can imply that third parties—*i.e.*, persons other than the proponent of the expert testimony, for whom the testimony is typically self-serving—would vouch for the reliability of the expert's methods."). Consequently, the Court finds that the Government has not made a showing that this factor weighs in favor of admissibility.

8. The Known or Potential Rate of Error

When asked about the error rate in the AFTE firearms and toolmark examination procedure, Cooper responded that it is almost zero when the analysis is performed by properly trained and qualified examiners—a fact attested to by numerous SWGGUN slides showing thirteen validity studies with error rates averaging close to zero. (Ex. 36). He contrasted these low error rates with the error rate in firearms identification performed by CTS in 1992-2000 and 2003, which had been fraught with problems, including trainees—rather than qualified firearms examiners—conducting the tests. Wrensford submitted no evidence suggesting that the low error rates, in studies performed from 1998-2012, should be questioned. The Court finds that this *Daubert* factor weighs in favor of admissibility.

9. Summary

When the Court considers the reliability of the firearms identification methodology as a whole, including the fact that virtually all of the *Daubert/Pineda* factors here weigh in favor of admissibility, it finds—consistent with other courts—that the concerns with subjectivity as it may impact testability, standards, and protocols do not tip the scales against admissibility. Moreover, there has been widespread acceptance of firearms and toolmark analysis in the courts. *See Melcher*, 2014 WL 31359, at *12 (opining that "[e]xpert testimony identifying a particular weapon as the same source of a questioned crime scene bullet and known bullets from test firings is admissible in every American jurisdiction.") (citing 4 David Faigman et al., *Modern Scientific Evidence, the Law and Science of Expert Testimony* § 35:1, p. 619, Thompson Reuters/West 2010); *see id.* ("Although, in some cases, courts are beginning to apply closer scrutiny to the techniques used in this type of forensic identification, they have generally found toolmark and firearm identification evidence to be sufficiently reliable.") (citing, *inter alia*, *Monteiro*, 407 F.

Supp. 2d at 372 (community of toolmark examiners united in its acceptance of current scientific technique and "the methodology of firearms identification is sufficiently reliable" even though improvements have been suggested)); *Green*, 405 F. Supp. 2d at 122, 123 (observing that "[t]here is apparently widespread acceptance in the courts of ballistics testing and toolmark analysis"; that "court after court has continued to allow the admission of this testimony"; and ruling that despite the shortcomings in the expert's testimony, "this precedent plainly points *in favor* of admissibility.").

In sum, the Court finds that the firearms identification methodology used by Cooper and DeSouza is reliable under *Daubert/Pineda* and Rule 702.

C. Fit: Expert's Testimony Must Assist Trier of Fact

The third requirement of the Rule 702 test mandates that "the expert's testimony must be relevant for the purposes of the case and must assist the trier of fact." *Schneider*, 320 F.3d at 404. The Government contends that the "9mm shells seized from the crime scene and from the recovered red get-away truck, as well as a bullet removed from the victim's head, were all discharged from the recovered 9mm firearm." (Dkt. No. 70 at 1-2). The "fit" here is manifest. If the 9mm shells found at the crime scene, in the bed of the truck, and the bullet recovered from the victim's head were all discharged from the recovered 9mm firearm, and it is shown that Wrensford's DNA was on the firearm (a fact attested to by the Government's DNA expert), that would provide evidence relevant to a possible link between Defendant Wrensford and the crime.

D. Summary

The Government has shown that DeSouza is qualified as an expert by his knowledge, experience, and training; that the firearms identification methodology used here is reliable; and that DeSouza's testimony will be relevant for the purposes of this case. Thus, the Court finds that

the firearms identification expert testimony proffered by the Government meets the requirements of Rule 702. Accordingly, Defendant Wrensford's *Daubert* Motion as it pertains to DeSouza will be denied.

V. CONCLUSION

For the reasons set forth above, the Court denies Defendant Wrensford's *Daubert* Motion to the extent he seeks to exclude expert testimony from firearms examiner Reynold DeSouza. An appropriate Order accompanies this Memorandum Opinion.

Date: July 28, 2014

_____/s/_____
WILMA A. LEWIS
Chief Judge