

1 UNITED STATES OF AMERICA  
2 FOR THE DISTRICT OF MARYLAND  
3 SOUTHERN DIVISION

4 UNITED STATES OF AMERICA, : Criminal Action No.:  
5 vs. : PWG 17-242  
6 JOVON MEDLEY, : Greenbelt, Maryland  
7 Defendant. : Tuesday, April 24, 2018  
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10 TRANSCRIPT OF EXCERPT OF MOTION HEARING PROCEEDINGS  
11 BEFORE THE HONORABLE PAUL W. GRIMM  
12 UNITED STATES DISTRICT JUDGE

13 APPEARANCES:

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P-R-O-C-E-E-D-I-N-G-S

EXCERPT

(Whereupon, other proceedings were reported, but are not herein transcribed.)

THE COURT: All right. Are we ready to proceed?

MR. OPPENHEIMER: Yes, Your Honor.

MR. NAUVEL: Yes, Your Honor.

THE COURT: All right. The two operative filings in this case are ECF 68, Defense Motion In Limine to Exclude Firearm Identification Evidence or in the Alternative to Limit it, which was filed on March 21st, 2018. And ECF 78, the government's response to this motion, ECF 78 filed on April 9th, 2018.

Each of the motions contained a significant number of exhibits, the defense exhibits were numbered A through N, and include ballistic imaging report excerpts, excerpts from the PCAST, which is President's Council of Advisors for Science and Technology, excerpts, PCAST addendum, the National Research Committee's forensic report, the disclosure of Mr. McVeigh in this case, the affidavit of Mr. Nixon, who is the defense expert, a article from "Jurimetrics," J-U-R-I-M-E-T-R-I-C-S, 51 "Jurimetrics Journal," summer 2010; the AFTE, which is the Association of Firearms and Tool Mark Examiners, training module; the AFTE, theory of identification; a OSAC research needs assessment form, and -- hold on one second.

1 (Pause.)

2 THE COURT: Department of Justice memorandum from  
3 Attorney General Lynch dated September 2016 regarding forensic  
4 evidence disclosures, firearm and tool mark discovery requests  
5 submitted by the defense, the government's discovery production  
6 letter, and the Department of Justice Code of Professional  
7 Responsibility for the Practice of Forensic Science.

8 In response, the exhibits produced by the government  
9 were the Prince George's County police investigator's notes from  
10 Mr. McVeigh, witness statements, the crime scene report, various  
11 documents associated with the NIBIN, N-I-B-I-N, analysis, which  
12 was testified about yesterday. Firearms analysis, the response  
13 of the AFTE to the National Academy of Sciences 2008 report  
14 addressing feasibility, accuracy and technical capability of  
15 national ballistic database. The response to 25 foundational  
16 firearm and tool mark examination questions, the 2016 PCAST  
17 report, the OSAC response to the PCAST report.

18 Give me one second. Yes, finally, OSAC, Organization  
19 of Scientific Area Committees, the tool marks, the firemarks --  
20 Firearms and Tool Mark Subcommittee dated 14 December 2016,  
21 which was submitted to PCAST in response to its December 2016  
22 report. And then various documents with regard to the discovery  
23 produced in this case at the hearing. Additional documents were  
24 introduced into evidence and received as well.

25 I want to start with the general evidentiary issue

1 that we have to address. From there I want to deal with past  
2 judicial opinions that have focused on firearms evidence. I  
3 then want to focus on the more recent analysis of firearms, tool  
4 mark evidence inaugurated by the 2015 PCAST report and  
5 subsequently. Then I want to address the specific expert report  
6 findings in this particular case and leave you with my ruling.

7           The challenge as presented by the defense comes from  
8 Federal Rule of Evidence 702 that deals with expert testimony.  
9 That rule, which was last codified in December of 2000, says  
10 that, in essence, when if scientific technical or specialized  
11 information will assist the fact-finder in understanding the  
12 evidence or making a determination of an issue that is left to  
13 the fact-finder, then an expert qualified by virtue of  
14 knowledge, training, experience, background, education or skill  
15 may testify in the form of an opinion or otherwise. That was  
16 the basic formula up until 2000 that had been in existence since  
17 the mid-1970s when the Rules of Evidence were first codified.

18           But in response to the trilogy of cases from the  
19 mid-1990s to the end of the 1990s in *Daubert versus Merrell Dow*,  
20 the *Kumho Tire*, I think it's *Kumho Tire versus Carmichael*, and  
21 the *Joiner* case, the Advisory Committee for the Rules of  
22 Evidence recommended and the Supreme Court and Congress approved  
23 changes to Rule 702 that added the new language after the  
24 introductory clause I have just paraphrased. That new language  
25 required that the expert could testify in a form of an opinion

1 or otherwise if properly qualified, and if it would be helpful  
2 to the jury. If, one, the expert's opinion was based upon  
3 sufficient facts or data.

4 Two, the methods and principles relied upon were  
5 reliable.

6 And three, the methods and principles used would  
7 reliably apply to the facts of the particular case.

8 Those final three qualifications were the product of  
9 the Supreme Court's discussions in the *Daubert*, *Joiner* and *Kumho*  
10 *Tire, K-U-M-H-O, Tire* cases.

11 The new area of evidence law that was inaugurated by  
12 *Daubert* in the mid-1990's thrust upon federal judges a role that  
13 many feel they're ill equipped for. And that is, judges who are  
14 generalists are required to make specific assessments regarding  
15 the validity and reliability of underlying scientific and  
16 technical processes that come into court very frequently.

17 *Daubert* was an interesting case because it was a  
18 method/epidemiological case involving the birth control drug  
19 Bendectin -- not birth control, but the antinausea drug for  
20 pregnant women, Bendectin, and whether it caused birth defects.  
21 And the plaintiff who had very qualified experts had introduced  
22 in response to the defense Motion for Summary Judgment the  
23 affidavits of a number of very qualified experts who expressed  
24 the opinion that based upon chemical analyses in lab testing of  
25 rodents, and the careful analysis of the underlying data in

1 various published opinions that themselves did not find the  
2 causal connection, that there was a causal connection between  
3 Bendectin and birth defects.

4           The defendants had received that expert disclosure as  
5 required by Federal Rule of Civil Procedure 26(a)(2), and when  
6 discovery had concluded, they filed a Motion for Summary  
7 Judgment with an affidavit of a medical doctor who was an  
8 epidemiologist who swore in his affidavit that he had reviewed  
9 all 300 plus published articles that dealt with Bendectin, and  
10 that there was no epidemiologically recognized causal connection  
11 between Bendectin and birth defects. And as a result of that,  
12 the District Court excluded the plaintiff's experts and granted  
13 summary judgment in favor of the plaintiffs -- or the defendant,  
14 excuse me.

15           It went up on appeal and ultimately the Supreme Court  
16 granted cert. And largely the epidemiological affidavit of the  
17 doctor had taken the position that the methodology used by the  
18 plaintiff's doctor in *Daubert* was flawed because the generally  
19 accepted methodology for determining causation of health,  
20 adverse health effects in the large population of people came  
21 not from clinical medicine, the assessment of individual  
22 patients' health and the treatment thereof, but rather  
23 epidemiological studies of broad populations throughout a  
24 lengthy period of time, and that that methodology used by the  
25 plaintiff's experts was not generally accepted as reliable among

1 the relevant scientific community, which was epidemiologists.

2 At the Supreme Court, the plaintiffs and their amici  
3 shocked all of the observers because they took the position that  
4 this general accepted standard which came from *United States*  
5 *versus Frye*, a decision of the 1920s by the District of Columbia  
6 Court of Appeals that rejected the proposed testimony of a  
7 precursor to a lie detector test.

8 The plaintiffs in their amici argued that that general  
9 accepted standard had no place in Evidence Rule 702, which when  
10 the Rules of Evidence were codified in the mid-1970s supplanted  
11 that common law approach for determining when novel science was  
12 admissible.

13 And what *Frye* had said was, "In the continuum of  
14 science, which marches on for all times, no individual knows,"  
15 and this is paraphrasing language actually used by the court in  
16 that twilight zone of science, and they used the phrase  
17 "twilight zone," an idea which has promise crosses the line and  
18 becomes generally accepted by the scientific community. But  
19 when it does, it's reliable enough to be brought to the  
20 attention of juries to be used in deciding cases.

21 And the Supreme Court was faced with the challenge of  
22 whether or not there was any position for the *Frye* case as a  
23 standard when Rule 702 was absolutely silent about whether that  
24 standard applied.

25 The Supreme Court's *Daubert* decision started from the

1 broad propositions that they felt were important, and there were  
2 four of them: Relevance, reliability, helpfulness and fit.  
3 Evidence is not relevant under Rule 401, has no tendency to  
4 prove something is important to the case and shouldn't be  
5 admitted.

6           Reliable evidence is not -- unreliable evidence is not  
7 relevant. If methodology does not produce reliable results, it  
8 has no tendency to prove something important in the case.  
9 Reliability is key.

10           Helpfulness is key for expert testimonies. We want  
11 the jury to be helped. Unreliable expert testimony, methodology  
12 that's not reliable is not relevant and, therefore, can't help.

13           And then there's fit, whether or not the methodology  
14 used fits the facts of that particular case. And from these  
15 four overlapping areas of evidentiary concern, the Supreme Court  
16 moved on to say that there would be a non-exclusive five factor  
17 test that federal judges were required to employ under Federal  
18 Rule of Evidence 104(a) that says that the judge makes  
19 preliminary determinations regarding the admissibility of  
20 evidence, the qualification of witnesses and the existence of a  
21 privilege. And in doing so is not required to strictly apply  
22 the Rules of Evidence except for privilege. That, by the way,  
23 is bolstered by Evidence Rule 1101(d)(1), which says that the  
24 facts upon which the court makes a 104(a) ruling are not  
25 strictly bound by the Rules of Evidence with the exception of



1 privilege.

2           And judges, after *Daubert*, were supposed to exercise  
3 this gatekeeper function. And to do so there were five  
4 non-exclusive tests that were identified.

5           Number one, has the methodology been tested.

6           Number two, is there a known error rate.

7           Number three, has the methodology and the testing of  
8 that been subject to peer review evaluation.

9           And the court put great faith in peer review as it  
10 occurs in the scientific community when research findings are  
11 published, a board of distinguished peer reviewers evaluates  
12 the -- the nature and the design of the experiment ensures that  
13 it is appropriate for publication. And then the publication  
14 process draws review by other scientists in the field, criticism  
15 support, spinoff experiments. And from that process science is  
16 supposed to evolve identifying promising reliable methodology  
17 and eliminating that which, perhaps, promising but turned out  
18 not to have sustainability when subject to subsequent review.

19           Third -- or fourth was whether or not the methodology  
20 had generally been accepted by the relevant community.

21           And the community here is scientific, technical or  
22 specialized. Manifestly not judicial as the Seventh Circuit and  
23 the Sixth Circuit in other context, looking at cell tower  
24 information, which is our next hearing, have said, the judicial  
25 community and the law enforcement community are not the proper

1 communities for determining whether scientific, technical or  
2 specialized information is reliable. That is a community of  
3 those who practice that particular science, technology or their  
4 technical discipline.

5           And the mere facts that -- the mere fact that courts  
6 have relied upon a certain methodology and admitted it in the  
7 past does not grandfather that methodology once the *Daubert*  
8 decision and Rule 702 was changed to require judicial  
9 independent analysis.

10           The final *Daubert* factor was whether or not there were  
11 standard tests and protocols that governed the methodology and  
12 whether they had been complied with. So it's testing, error  
13 rate, peer review, general acceptance and compliance with  
14 standard testing protocol.

15           As I mentioned when counsel were capably arguing, the  
16 judicial community was gobsmacked by this decision. And judges,  
17 as the Chief Justice Rehnquist in his -- in his separate opinion  
18 that he wrote in *Daubert* said essentially that he had no -- he  
19 stood second to no person in his respect for the federal  
20 judiciary, but how in the world federal judges, who are  
21 generalists, were supposed to apply falsifiability to a myriad  
22 of scientific and technical disciplines in the context of  
23 resolving a specific case was a mystery to him.

24           Notwithstanding that, the mystery continues, and after  
25 the *Daubert* case, the *Kumho Tire* case applied the *Daubert*

1 methodology to nonspecifically scientific disciplines. That  
2 involved explosion of a tire, and it was more a matter of  
3 engineering and manufacturing than it was science. And then the  
4 *Joiner* decision also provided insight.

5           So the efforts of the judiciary to confine like  
6 putting the Jeannie in the bottle, the analysis of *Daubert* to  
7 hard science was dispelled after that trilogy of Supreme Court  
8 cases. The changes to Rule 702 were adopted, and since that  
9 time courts have been required to allow it. And to follow that  
10 procedure.

11           There's not only associated with *Daubert* because  
12 *Daubert* was actually intended to liberalize the introduction of  
13 scientific, technical and specialized information because  
14 previously, the hammerlock of general acceptance meant that  
15 there could be very promising and potentially reliable  
16 methodology that had not been around long enough to obtain or to  
17 attain general acceptance that would be rejected because they  
18 weren't generally accepted. And *Daubert* was actually conceived  
19 of as a liberalizing analysis to be used.

20           Experience has shown it's been used primarily just for  
21 the opposite, namely it tried to exclude evidence, but  
22 regardless of whether it's used to include or exclude evidence,  
23 *Daubert* puts a substantial burden on the court to exercise that  
24 gatekeeping function. And it is not permissible for courts to  
25 ignore that gatekeeping function when faced with challenges that

1 raise into question the various elements of what *Daubert*  
2 requires.

3           Turning my attention now to the firearms, tool mark  
4 evidence. The starting point for my analysis is my report and  
5 recommendation, which was adopted by Judge Quarles, when I was a  
6 Magistrate Judge, eight years ago in *United States versus*  
7 *Willock, W-I-L-L-O-C-K*, 696 F.Supp. 2d 536, which dealt with  
8 firearms, tool marks analysis. I am not going to verbatim go  
9 through every bit of that decision, but I'm going to talk about  
10 some of the significant concepts in that opinion that continue  
11 to have liability today.

12           In 2010, as for tool mark evidence, particularly being  
13 used primarily in criminal cases to identify whether or not  
14 bullet fragments, bullets or cartridge casings were fired from a  
15 particular firearm that was involved in a crime, that evidence  
16 had been around for probably a hundred years and had been widely  
17 accepted without any real challenge or analysis by state and  
18 federal courts throughout the country and the world.

19           And, indeed, as evidence of that, when I asked him  
20 this question yesterday, Mr. McVeigh testified that in the 80  
21 times in which he had testified as an expert regarding his  
22 discipline, only twice, this case and one other case, had there  
23 ever been a real challenge that required the court to exercise  
24 its function. And that's a perfect reason to explain why the  
25 mere fact that courts in the past have accepted certain

1 technical or specialized information is absolutely not in itself  
2 sufficient for courts to continue to admit it. It's just not  
3 allowed. It's not what *Daubert* requires, although it is easy  
4 sometimes just to say, well, those other courts have done it so  
5 will I.

6 As pointed out in *Willock*, at that particular time,  
7 2010, the National Research Council at the request of the  
8 National Academy of Sciences had begun to look at forensic  
9 evidence and had published a report that focused on many of the  
10 forensic comparative forensic analysis and had reached -- had  
11 expressed opinions regarding whether it was reliable.

12 And in the *Willock* case, I cited to all of the  
13 significant federal court decisions that had been decided as of  
14 that date to have looked at the admissibility of tool mark  
15 evidence. Obviously in 2010, that was ten years after the  
16 changes to Rule 702. Some courts had done what I will call  
17 rigorous 702 analysis, others had not, had just simply accepted  
18 this evidence because it had always been introduced in the past.

19 The basic foundation of tool mark forensic evidence  
20 was discussed in the *Willock* case beginning at page 555 of the  
21 opinion. Essentially what it says is a tool mark is a mark  
22 that's generated when a hard object known as the tool comes into  
23 contact with a relatively softer object.

24 And that, for example, in the context relevant to this  
25 case is when a firearm makes contact with -- when it's made,

1 when you have a hard tool that gouges or carves or removes metal  
2 in order to form the component parts of the firearm; the barrel,  
3 the chamber, the breach face, the firing pin, and if you're  
4 dealing with a semi-automatic as we are here, the extractor, the  
5 ejector. And when the tools that manufacture these manufactured  
6 products, the components of the firearm are softer than the tool  
7 that makes them by definition and the thought is that  
8 microscopic magnification, you can see marks made by the tools  
9 on the item that was manufactured.

10           Similarly, when a semi-automatic handgun is  
11 discharged, the theory goes, marks are transferred to the  
12 components of the ammunition.

13           So, for example, when a semi-automatic handgun  
14 advances a cartridge which composed of the -- the cartridge  
15 casing, the bullet, and inside of it is the explosive material  
16 that propels the bullet in the back of which is the firing pin,  
17 it comes up into the chamber. When the -- when the slide of the  
18 handgun is pulled back and advances it into the chamber and goes  
19 forward, the breach face comes into contact with the back of the  
20 cartridge. When the trigger is pulled, the firing pin is  
21 impacted by the hammer, which can leave an impression in the  
22 center of the rim of the back of the cartridge.

23           The explosion that occurs when the firing pin  
24 detonates the -- ignites the explosive, propels the bullet,  
25 which goes through the rifling in the barrel, which can go from

1 left to right or right to left, expels in a spinning fashion the  
2 bullet, and the bullet then goes to wherever it lands.

3           The gas that is expelled by the explosion then forces  
4 the ejector back, it then grabs with another piece of the  
5 mechanism the rim of the cartridge, flips it out, and advances  
6 another one up into the chamber, and the process starts again as  
7 quickly as the trigger can be pulled.

8           And the theory is, is that those forces cause the  
9 harder metal of the component parts of the semi-automatic  
10 handgun to transmit marks on the bullet made by the lands and  
11 grooves of the barrel and the cartridge as it is grabbed and  
12 pushed and pulled and ejected.

13           And those characteristics, the theory goes, can be  
14 microscopically looked at, and you can compare cartridges fired  
15 or bullets fired from the same handgun over a succession of  
16 time.

17           And the theory is that if tool marks are unique and  
18 transmitted uniquely by each gun onto the components of the  
19 bullet when it is fired, then you would expect to see the same  
20 matching set of marks on the components of a bullet if you  
21 examined it under high magnification. That's the theory.

22           The National Research Council's Committee that was  
23 charged in 2008 in this report reported on its examination of  
24 ballistic tool mark analysis, and one of the things that is  
25 associated with it is sort of three definitions that become key

1 in the way in which the science and technology is supposed to  
2 operate.

3           First of all, you have class characteristics. Those  
4 are family resemblances which will be present in all weapons of  
5 the same make and model. So we have the .45 caliber as distinct  
6 from the .38 caliber or a .32. We have a revolver which  
7 operates differently than a semi-automatic. We heard testimony  
8 from Mr. McVeigh yesterday that some rifling goes to -- toward,  
9 twists toward the right. Other rifling may twist toward the  
10 left. There may be different numbers of spirals in the rifling,  
11 the longer the barrel, the more the spirals, and those are class  
12 characteristics.

13           So if, for example, you find a .38 caliber shell at a  
14 crime scene, then by definition you've eliminated every larger  
15 caliber and smaller caliber handgun from the likely candidates  
16 that could have fired that gun. The .45 eliminates a .32 and  
17 .38 and a 9-millimeter and those are class characteristics.

18           Class characteristics that can cause impressions on --  
19 on bullets and casings and cartridge casings including the  
20 caliber, type of breach face, type of firing pin, and the breach  
21 face can be parallel, arched, smooth or granular or circular.  
22 The firing pin can leave an impression that's circular or  
23 rectangular or elliptical.

24           Then we have subclass characteristics. Subclass  
25 characteristics are defined, and this is at page 58, by the way,



1 of the *Willock* case, produce incident to the manufacturer and  
2 can arise from a source when changes over time and therefore may  
3 be present on a group of guns within certain make or model such  
4 as those manufactured at a particular time and place. That's  
5 the *Montiero* case, the *Diaz* case and the NRC ballistic imaging  
6 report cited at page 558.

7           So, the notion would be that an example of subclass  
8 characteristics would include imperfections that are present on  
9 the tool that creates the component parts of a firearm that, for  
10 example, are manufactured in a single manufacturing run. So  
11 we've got the same kind of product that is being used to make  
12 the barrel, for example. We've got the same tools that are used  
13 to make the barrel, and we're going to run all these through in  
14 one run of 200 barrels.

15           And the theory is, is that those will have subclass  
16 characteristics. So they'll be .45 caliber, they'll be barrel  
17 that has a right groove twist. There'll be seven curves in the  
18 rifling, but each one having been manufactured by the same tools  
19 will bear upon microscopic examination unique marks that were  
20 imprinted on them by that particular manufacturing process.

21           And the theory is, is that if you were to fire  
22 ammunition through all of those, then you would expect to see  
23 some marks on all of them that were similar because they were  
24 manufactured from products all created by the same tools in the  
25 same individual manufacturing process. That's the theory

1 anyway. And that's discussed by Mr. Nichols in his 52 "Journal  
2 of Forensic Science" article at page 587, 2007.

3 Finally, we have individual characteristics, which are  
4 defined as random imperfections produced either during the  
5 manufacture or by accidental damage which are unique to the  
6 object and distinguish it from all others.

7 The -- and this, by the way, is sort of the key, an  
8 analytical issue of tool mark analysis in firearms cases. And  
9 that is whether or not, when you look at the marks on a shell  
10 casing found at a crime scene, whether they were, they bear the  
11 identity of individual characteristics unique to them based upon  
12 the unique marks on the handgun that fired them or whether they  
13 are -- bear the characteristics of marks that they share as  
14 subclass characteristics from a number of guns manufactured by  
15 the same tool. And that is the whole underlying issue as to  
16 whether or not the firearms examiner can state that the marks on  
17 the bullet or the cartridge are unique and individual to that  
18 particular firearm to the exclusion of other firearms.

19 Now, how does a firearms examiner get from the  
20 examination of a set of cartridges and bullets found at a crime  
21 scene to a decision as to whether or not they were fired by one  
22 particular individual firearm that has been proven to be  
23 connected to the defendant?

24 They do so through a process that allows them to reach  
25 the decision that the marks on the cartridges or the bullet

1 fragments found at the crime scene are in sufficient agreement  
2 with the marks that are found on cartridges and bullet  
3 components that have been known to have been produced from the  
4 handgun at issue. And page 560 of *Willock*, the definition of  
5 sufficient agreement that was used in the *Montiero* case that was  
6 quoting from the AFTE, which is the Association of Firearms and  
7 Tool Mark Examiners' theory at page 86, and the Nichols' article  
8 that I just quoted from before at page 589 is defined as  
9 follows:

10 "Agreement is significant when it exceeds the best  
11 agreement demonstrated between tool marks known to have been  
12 produced by different tools and is consistent with the agreement  
13 demonstrated by tool marks known to have been produced by the  
14 same tool."

15 Now, as pointed out at page 560 of *Willock* and  
16 acknowledged by the *Montiero* case in the AFTE theory at page 86,  
17 this is inherently subjective, and indeed, as we'll see in just  
18 a moment, the PCAST report says it's also circular.

19 When you say that the agreement is significant when it  
20 exceeds the best agreement demonstrated between tool marks known  
21 to have produced by two different tools, that necessarily  
22 encompasses the proposition that different tools can produce  
23 marks that are the same. And therefore, in order to take the  
24 first step of a sufficient agreement, the tool mark examiner has  
25 to have some ability to differentiate the fact that at some

1 point the number of agreeing marks between the questioned bullet  
2 and the source gun are more than you would expect to find from  
3 marks that are the same or similar which were produced by firing  
4 from different guns. That's the first step, and yet there is no  
5 numerical value that allows us to know whether is it one, is it  
6 two, is it four, is it 12, is it 17. How do we know that?  
7 Definition doesn't answer that.

8           The same circularity applies to the second half, which  
9 is, is it consistent with the agreement demonstrated by tool  
10 marks known to have been produced by the same tool. Now, what  
11 does that mean? So that means that by definition it can't be  
12 avoided that marks, that when you have -- with a tool as a  
13 handgun, and the items are being looked at are the cartridges  
14 and the bullet fragments, that the very definition of sufficient  
15 agreement acknowledges that there will be different marks on the  
16 bullets produced by the same tool. And that you expect there to  
17 be differences, but when there are similarities, if they are  
18 consistent with, whatever that's supposed to mean, the agreement  
19 demonstrated by marks known to have been produced by the same  
20 tool, then that plus the first component of the definition  
21 allows the examiner to express the opinion that there is  
22 sufficient agreement and express the opinion, if allowed by the  
23 court, that the gun produced was the gun that discharged that  
24 ammunition.

25           This is a subjective test and nothing since 2010 and

1 nothing before it and nothing after it has done anything to  
2 change the subjectivity of this test. As pointed out at page  
3 560 of *Willock*, there is no quantitative standard for how many  
4 striations or marks need to match or line up. It's based upon a  
5 holistic assessment of what the examiner sees.

6 And as the *Glynn* case, the *Glynn* court observed, it's  
7 inherently vague, and they are significantly subjective.

8 Indeed, Ronald Nichols, who is the -- probably the most  
9 well-known ATF agent and AFTE supporter of the substantial  
10 agreement and firearms analysis methodology, who is assigned to  
11 the ATF bureau in San Francisco, at least was in 2010, as he  
12 said in his article previously quoted in the *Willock* article at  
13 page 589, there is no universal agreement as to how much  
14 correspondence exceeds the best known non-matching situation.

15 So, how do we try to square the circle? Well, as  
16 noted in *Willock*, the -- the AFTE methodology places a great  
17 deal of premium on documentation of the reasons concluding that  
18 there is a match. And they say that it can include diagrams,  
19 photographs or written descriptions, plus what they refer to as  
20 peer review, which is not peer review. It's not publication in  
21 journals that expose the methodology for others to review and  
22 criticize, but rather it just means verification by some other  
23 tool mark examiner.

24 The AFTE standard, and I'm quoting now from the  
25 standardization of comparison documentation cited at page 561 of

1 *Willock* says: "The case record must contain documentation of  
2 the observations that serve as the basis for a reported  
3 conclusion."

4           Now, I'm no longer quoting. It goes on to say there's  
5 a lot of latitude, and I now quote, "laboratories are afforded  
6 latitude in establishing how this should be accomplished. At a  
7 minimum, the documentation must include interpretable depictions  
8 or descriptions of the agreement or disagreement of individual  
9 and/or class characteristics to the extent that another  
10 qualified firearm and tool mark examiner, without the benefit of  
11 the evidence itself, can review the case record, understand what  
12 was compared, and evaluate why the examiner arrived at the  
13 reported conclusion. The case record must clearly describe the  
14 label, what items are depicted."

15           Now, to go back to Rule 702, the -- the essence of  
16 trying to apply 702 methodology after the 2000 changes, what  
17 guidance does the rule or do the advisory notes give us as to  
18 what do you do when the opinion that is to be expressed at trial  
19 rests primarily upon the experience and subjective evaluation of  
20 the expert.

21           The Advisory Committee notes say as follows: "If the  
22 witness is relying solely or primarily on experience, then the  
23 witness must explain how that experience leads to the conclusion  
24 reached, why that experience is sufficient basis for the opinion  
25 and how that experience is reliably applied to the facts.

1           The trial court's gatekeeping function requires more  
2 than simply taking the expert's word for it and that is  
3 critical."

4           Now, in the *Willock* case, I looked at a number of  
5 decisions, all of them by definition before 2010, that have  
6 begun to question what was happening with tool mark evidence.  
7 It was the Second Circuit's case in 2007, *United States versus*  
8 *Williams*. It noted that *Daubert* did not grandfather or protect  
9 from *Daubert's* scrutiny evidence that had previously been  
10 admitted.

11           And there was the *Green* case that acknowledged that  
12 courts were obliged to critically evaluate tool mark and  
13 ballistic evidence even though it had been accepted for years,  
14 405 F.Supp. 2d at 104. And I acknowledge that beginning in  
15 2005, in the National Research Council's Forensic Science Report  
16 and thereafter with the National Research, the NRC Forensic  
17 Science Report that the scientific community as charged by the  
18 National Academies of Science had begun to look at forensic  
19 analysis and tried to determine whether or not it met  
20 reliability standards after *Daubert* in 702.

21           And in the National Research Council's Forensic  
22 Science Report in 2005, as quoted at page 565 of *Willock*, I  
23 noted that the NRC Forensic Science Report concluded, "because  
24 not enough is known about the variabilities among individual  
25 tools and guns, we are not able to specify how many points of

1 similarity are necessary for a given level of confidence in the  
2 result. Sufficient studies have not been done to understand the  
3 reliability and repeatability of these methods.

4 The committee agrees that class characteristics are  
5 helpful in narrowing the pool of tools that may have left a  
6 distinctive mark. Individual patterns from manufacture or from  
7 where might in some cases be distinctive enough to suggest one  
8 particular source, but additional studies should be performed to  
9 make the process of individualization more precise and  
10 repeatable."

11 Now, what the NRC was saying is that the validity of  
12 the tool mark analysis methodology depends upon establishing two  
13 things. The uniqueness of individual marks and the  
14 reproducibility of those unique marks on ammunition when it is  
15 fired from the firearm. And unless those two things can be  
16 established, then you have not met the requirement of showing  
17 that the methods and principles used are reliable.

18 The point that was also made in the *Willock* case which  
19 is important was that the NRC ballistic imaging report cited a  
20 article by a Biasotti, B-I-A-S-O-T-T-I, published in 1959 which  
21 said, and I quote now, this is at page 72 of the *Willock*  
22 decision, "The average percent match for bullets from the same  
23 gun is low, and the percent match for bullets from different  
24 guns is high."

25 So what that means is, is that when you look at all



1 the marks on bullets known to have been fired from the same gun,  
2 you can focus in on matches that, on marks that match, but  
3 there's a large number of marks that don't match. And when you  
4 focus on cartridges fired from different guns, there's a large  
5 number of similar marks as compared to distinct marks.

6 So the question is, if you are applying an inherently  
7 suggestive approach of sufficient agreement and you know that  
8 marks, there are going to be a relatively large number of marks  
9 on cartridges fired by different firearms, and when you compare  
10 all of the marks on cartridges fired by the same firearm, there  
11 will be a lot that don't match. How do you determine sufficient  
12 agreement? And there is nothing, at least at that time in the  
13 methodology of tool mark examination that gave you the answer to  
14 that question, other than just simply, well, this is the  
15 experience of the examiner.

16 Since 2010, the debate on forensic evidence has not  
17 abated. It's increased. In September of 2016, the report to  
18 the president from the forensic science on forensic science in  
19 criminal courts from the President's Advisory Council on Science  
20 and Technology came out. This is referred to as the PCAST.

21 The report indicated that it was provided after the  
22 analysis by the National Research Council in 2009 and was  
23 designed to bring forward analysis of forensic comparison method  
24 analysis. So feature comparison methods included things such as  
25 single sourced DNA analysis, complex mixture DNA analysis, bite

1 mark analysis, latent fingerprint analysis, firearms analysis,  
2 footwear analysis, hair analysis, and this report was -- made  
3 recommendations to the National Institute for Standards and  
4 Technology, NIST, the Department of Commerce, recommendation for  
5 the FBI laboratory, recommendations to the attorney general,  
6 recommendations to the judiciary.

7           And I want to refer now to the portions of the PCAST  
8 report that focused on firearms analysis which advances five  
9 years to the most immediate past. And before doing that, I want  
10 to make one further point on *Daubert* that I didn't make earlier.  
11 The result of *Daubert* analysis in theory, anyway, is not to  
12 analyze the correctness of the decision reached, but rather to  
13 analyze the reliability and methodology and sufficiency of the  
14 factual data.

15           So, what do we know from the 2016 PCAST report? And I  
16 might add also that the PCAST folks that were -- the co-chairs  
17 were the assistance of the president of the United States from  
18 science and technology, Professor Eric Lander, president of the  
19 broad institute of Harvard and MIT. The vice chairs included  
20 professors from computer science and integrated biology from the  
21 University of Texas. Members included the president of large  
22 corporations, professors from astrophysical science and  
23 international affairs from Princeton, physics professors from  
24 the University of Maryland, professors from the school of  
25 Natural Resources and Environment from the University of

1 Michigan. Natural economics, University of Maryland, the Kaiser  
2 Permanente School of Medicine, the planning dean and professors  
3 from various fields of science and technology across the group.  
4 The PCAST working group, the president was Professor Lander,  
5 Professor Gates from the Center for String and Particle Theory,  
6 Professor of Physics, University of Maryland, Professor Chin,  
7 distinguished professor emeritus and electrical engineering and  
8 computer science from Berkeley.

9           The Professor Press from the Computer Science and  
10 Integrated Biology Department at the University of Texas,  
11 Austin. Professor Schrag, professor of environmental science  
12 and director of Harvard University Center for the Environment.  
13 The staff included Diana Pankedich P-A-N-K-E-D-I-C-H, from the  
14 American Association for the Advancement of Science and  
15 Technology, and Tianna Simoncelli, S-I-M-O-N-C-E-C-L-L-I, senior  
16 advisor to the director of the Broad Institute at Harvard, and  
17 Kristin Sorelli, advisor to public policy and special projects  
18 at Harvard and MIT. And they had a number of judges and  
19 academics who also were on the panel.

20           Beginning at page 104 of the PCAST report it began its  
21 analysis of the methodology for firearms analysis. And it  
22 started with the notion that, "Firearms analysis," quote, "is  
23 based on the idea that tool marks produced by different firearms  
24 very substantially enough owing to variations in manufacture and  
25 use to allow components of fired cartridges to be identified

1 with particular firearms.

2 "For example, examiners may compare questioned  
3 cartridge cases from a gun recovered from a crime scene to test  
4 fires from the suspected gun." Talks about class  
5 characteristics and individual characteristics, and it made the  
6 following comment at page 104.

7 "PCAST expressed concerns about certain foundational  
8 documents underlying the scientific discipline of firearm and  
9 tool mark examination. In particular, we observed AFTE's theory  
10 of identification as it relates to tool marks which defines  
11 criteria for making an identification is circular. The theory  
12 states that an examiner may conclude that two items have a  
13 common origin if their marks are in sufficient agreement, where  
14 sufficient agreement is defined as the examiner being convinced  
15 that the items are extremely unlikely to have a different  
16 origin. In addition, the theory explicitly states the  
17 conclusions are subjective."

18 The report continues at page 105 and noted that there  
19 had been a lot of testimony -- a lot of attention in the recent  
20 past to try and to prove the theory that every gun produces  
21 unique tool marks. It made reference to the 2008 NRC report,  
22 and that report found, and I quote from page 105 of the PCAST  
23 report, "The validity of the fundamental assumptions of  
24 uniqueness and reproducibility of firearms related tool marks  
25 had not yet been demonstrated, and given current comparison

1 methods, a database search would likely return too large a  
2 subset of candidate matches to be practically useful for  
3 investigative purposes."

4           The report went on to say that, of course, it's not  
5 necessary that tool marks be unique for them to provide useful  
6 information about whether a bullet may have been fired from a  
7 particular gun, but, quote, "However, it is essential that the  
8 accuracy of the method for comparing them to be known to be  
9 based upon empirical studies."

10           They then cited from the 2009 NRC report, they  
11 concluded that there had not been sufficient studies done yet,  
12 and the footnotes to this analysis make reference to many of the  
13 studies that they looked at.

14           We heard a lot during the hearing yesterday and today  
15 about various studies that were attached to the exhibits that  
16 had been submitted to me and that I have reviewed. These  
17 various studies are discussed at the PCAST report beginning at  
18 page 106, and they differentiated between non-black box studies,  
19 which are referred to as set based analyses. And set based  
20 analyses essentially means that the examiners are aware that  
21 they have within the sample bullets, portions known to have been  
22 fired by the gun in question when in real life situations, crime  
23 scene analysts don't know that. They're seeking to determine  
24 whether that's the case, at least oftentimes.

25           It went on to say that, "Because firearms analysis is

1 at present a subjective feature comparison method, its  
2 foundational validity can only be established through multiple  
3 independent black box studies."

4           They concluded that, "Although firearms analysis has  
5 been used for many decades, only relatively recently has its  
6 validity been subject to meaningful empirical testing. Over the  
7 last 15 years the field has undertaken a number of studies to  
8 establish the accuracy."

9           It goes on to say that, "While the results  
10 demonstrated that the examiners can under some circumstances  
11 identify the source of fired ammunition, many of the studies  
12 were not appropriate for assessing scientific validity and  
13 estimating the reliability because they employed artificial  
14 designs that differ in important ways from problems faced in  
15 casework."

16           The analysis continued: "Specifically, many of the  
17 studies employed," quote, "set based analyses in which the  
18 examiners are asked to perform all peer-wise comparison within  
19 or between small sample sets."

20           They go on to say that, "The study design in some of  
21 these tests had serious flaws because the comparisons are not  
22 independent of one another, but rather involve internal  
23 dependencies that inform the examiners' answers and sometimes  
24 can allow the examiners to make inferences about the study  
25 design."

1           They conclude that, "Set based studies are not  
2 appropriately designed. Black box studies from which you may  
3 determine empirical studies of validity."

4           They went on to talk about certain types of set based  
5 comparisons that they referred to as within set comparisons and  
6 set-to-set comparisons and concluded that when they studied four  
7 specific such cases to include the Fadul, F-A-D-U-L, study,  
8 which is referred to here, that dealt with ten consecutively  
9 manufactured firearm slides, "examiners were given a collection  
10 of questioned bullets and/or cartridge cases fired from a small  
11 number of consecutively manufactured firearms of the same make.  
12 A collection of bullets or casings known to have been fired from  
13 these same guns. They were asked to perform matching  
14 exercises."

15           It says, "This closed set design is simpler than the  
16 problem encountered in casework because the correct answer is  
17 always present in the collection. In such studies examiners can  
18 perform perfectly if they simply match each bullet to the  
19 standard that's the closest. By contrast in an open set study,  
20 as in casework, there's no guarantee that the correct source is  
21 present. Closed set comparisons would thus be expected to  
22 underestimate the false positive rate."

23           They concluded on page 109, "In short, the closed set  
24 design is problematic in principal and appears to underestimate  
25 the false positive rate in practice. The design is not

1 appropriate for assessing scientific validity and measuring  
2 reliability."

3           They then at page 109 talked about the set-to-set  
4 comparison in a partially open set, the Miami/Dade study and  
5 then talked about recent black box study analysis that had taken  
6 place, referring to the Ames Laboratory study, which was  
7 introduced in this hearing.

8           And that actually did employ a design that had black  
9 box configuration, and in that particular study they found that  
10 when 218 examiners did their examination, one of whom was  
11 Mr. McVeigh, that they -- that there were 2,178 different source  
12 comparisons. There were 1,421 eliminations, 735 inconclusives  
13 and 22 false positives. The conclusive rate was 33.7 percent,  
14 and the false positive among conclusive examinations was  
15 1.5 percent with a confidence interval of 2.2 percent.

16           The false positive rate corresponds to an estimated  
17 error rate of one in 66, so the false positive corresponds to an  
18 error rate of one in 66. This is the best test done so far.  
19 Every 66 cases, there will be one error with an upper bound  
20 being one in 46; that would be the highest error rate, so that's  
21 the range.

22           The PCAST report concluded, "The results for the  
23 various studies are shown in table two. The table show a  
24 striking difference between the closed set studies where a  
25 matching standard is always present by design, and the



1 non-closed studies where there is no guarantee that any of the  
2 known standards match.

3           Specifically the closed set studies show a  
4 dramatically lower rate of inclusive examination and false  
5 positives. With this unusual design, the closed set studies  
6 that have been criticized, in other words, examiners succeeded  
7 in answering all the questions and achieved essentially perfect  
8 scores. In more realistic open designs, these rates of false  
9 positives are much higher."

10           The conclusions they reached, "The early studies  
11 indicate that examiners can under some circumstances associate  
12 ammunition with the gun from which it was fired. However, as  
13 described above, most of these studies involve designs that are  
14 not appropriate for assessing scientific validity or estimating  
15 the reliability of a method as practiced. Indeed, comparison of  
16 the study suggests that because of their design, many frequently  
17 cited studies seriously underestimate the false positive rate."

18           The conclusion continues at page 111. "At present  
19 there is only a single study that was appropriately designed to  
20 test foundational validity and estimate reliability, the Ames  
21 study. Importantly, the study was conducted by an independent  
22 group unaffiliated with a crime laboratory."

23           It goes to say that, "The scientific criteria for  
24 foundation of validity require appropriate design studies by  
25 more than one group to ensure reproducibility. Because there

1 has only been a single appropriate design study, the current  
2 evidence falls short of the scientific criteria for foundation  
3 of validity," and concluded that there was a need for additional  
4 analysis."

5           So, they summed it up in a chart on page 112.  
6 Foundational validity, quote, "PCAST finds that firearms  
7 analysis currently falls short of the criteria for foundational  
8 validity because there's only a single appropriate design study  
9 to measure validity and estimate reliability. Scientific  
10 criteria for a foundation of validity require more than one such  
11 study to demonstrate reproducibility.

12           Whether firearms analysis should be deemed admissible  
13 based on current evidence is a decision that belongs to the  
14 courts. If firearms analysis is allowed in court, the  
15 scientific criteria for validity as applied should be understood  
16 to require clearly reporting the error rates as seen in  
17 appropriately designed black box studies estimated to be at one  
18 in 66 with a 95 percent confidence limit of one in 46 in the one  
19 such study to date."

20           Now, as the government has properly pointed out, not  
21 everybody accepts the PCAST report. Indeed, there was a rather  
22 significant unfavorable response by a number of organizations to  
23 include the Department of Justice.

24           I'm going to turn to some of those in a moment, but  
25 first I want to cite from Defense Exhibit 1, the Ames study.

1 And the Ames study, again, the essence of that is found on page  
2 3 of the study, and it was summarized as follows.

3 First of all, it's done by Ames Laboratory associated  
4 with Iowa State University, so it was a -- an independent  
5 laboratory. It was not associated with the Association of  
6 Firearm and Tool Marks Examiners, which is the association of  
7 these folks who come into court and testify about firearms.

8 Here's the summary. "Responses were received from 218  
9 participating examiners. The rate of false negatives was quite  
10 low with the error distributed across examiners with various  
11 backgrounds, state, federal, local, private. The overall rate  
12 of false positives estimated as 1.01 percent from comparisons  
13 known to be from different firearms, but reported as  
14 identifications was significantly higher.

15 "However, most of the error rates were reported by a  
16 small number of examiners, that is, individual examiners have  
17 varying error rates. For most examiners this is quite low while  
18 for some it is relatively high. Hence, the overall rate is best  
19 interpreted as an average of widely varying individual rates.  
20 Inconclusive results were not recorded as errors. Rates of poor  
21 quality marked production for these handguns varied. False  
22 positive and false negative error rates for individual examiner  
23 performance were measured. The rates were not uniform across  
24 the sample population with a few examiners providing most of the  
25 false positives."

1           Now, the significance of that report is that with 218  
2 examiners, the actual false positive rates found were not  
3 uniformly disbursed among all those examiners. Some were very  
4 good and some were not. So how do we decide those that are good  
5 and those that are not?

6           Well, one way requires strict adherence to the  
7 methodology and documentation of how the methodology was applied  
8 in that particular case so that looking at just the records and  
9 the documentation without looking at the evidence itself, you  
10 can determine whether or not the conclusion reached was a proper  
11 conclusion.

12           Now, there were a number of other organizations  
13 including OSAC, the Department of Justice, individual tool mark  
14 practitioners, that went back to PCAST and said, you got it  
15 wrong. There are studies you didn't look at. You blew off  
16 these other studies that meet the criteria that you say we  
17 should have done, and you've, you know, cast aspersions on us  
18 that were not justified.

19           So PCAST considered those and came out with an  
20 addendum that they authorized just a little more than a year  
21 ago, January 6th, 2017, found at Exhibit C to the defense  
22 motion. It sort of summarized where PCAST left off to explain  
23 what it did in response to the criticism from many sources as to  
24 what it had done.

25           It said at page 1, "In this report, PCAST noted that

1 the only way to establish scientific validity and degree of  
2 reliability of a subjective forensic feature comparison method,  
3 that is, one involving significant human judgment, is to test it  
4 empirically by seeing how often examiners actually get the right  
5 answer. Such an empirical test of a subjective forensic feature  
6 comparison method is referred to as a black box test. The point  
7 reflects the central tenant underlying all science. An  
8 empirical claim cannot be considered scientifically valid until  
9 it has been empirically tested."

10 It goes on to say that, "Practitioners of a subjective  
11 forensic feature comparison method claim that through a  
12 procedure involving substantial human judgment they can  
13 determine with reasonable accuracy whether a particular type of  
14 evidence came from a particular source, the claim cannot be  
15 considered scientifically valid and reliable until one has  
16 tested it by, one, providing adequate number of examiners with  
17 an adequate number of test problems that resemble those found in  
18 forensic practice; and two, determined whether they get the  
19 right answer with acceptable frequency for the intended  
20 applications.

21 "While scientists may debate the precise design of the  
22 study, there is no room for debate, but the absolute requirement  
23 for empirical testing."

24 Now, having said that, we stated what their ground was  
25 from before, they summarized the responses that they had gotten.

1 Page 2 of the addendum.

2           The following reports released, "PCAST received input  
3 from stakeholders expressing a wide range of opinions. Some of  
4 the commentators raised the question as to whether empirical  
5 evidence is truly needed. The Federal Bureau of Investigation,  
6 which clearly recognizes the need for empirical evidence and has  
7 been a leader in performing empirical studies in latent print  
8 examination, raised a different issue. Specifically, although  
9 PCAST has received detailed input on forensic methods from  
10 forensic scientists at the FBI laboratory, the agency suggested  
11 that PCAST may have failed to take account of some relevant  
12 empirical studies.

13           A statement issued by the Department of Justice on  
14 September 20th, 2016, the same day the reports released opined  
15 that, quote, "The report does not mention numerous published  
16 research studies which seem to meet PCAST criteria for  
17 appropriately designed studies providing support for a  
18 foundation of validity. That omission discredits the PCAST  
19 report as a thorough evaluation of scientific validity."

20           So, what was the response of PCAST? They say, quote,  
21 "Given its respect for the FBI, PCAST undertook a further review  
22 of the scientific literature and invited a variety of  
23 stakeholders, including the DOJ, to identify any published  
24 appropriately designed studies that had not been considered by  
25 PCAST that established the validity and reliability of any of

1 the forensic featured comparison methods that PCAST report found  
2 to lack such support. As noted below, DOJ ultimately concluded  
3 that it had no additional studies for PCAST to consider.

4 "However, PCAST did receive written responses from 26  
5 parties, including federal agencies, forensic science and law  
6 enforcement organizations, individual forensic science  
7 practitioners, a testing service provider, and others in the  
8 United States and abroad. It noted that many of the responses  
9 were extensive, detailed, thoughtful, and covered a wide range  
10 of topics."

11 It acknowledged its gratefulness for the time that  
12 those folks took who opined on this important topic.

13 So based upon what they had received, they provided  
14 the following analysis: "While forensic science organizations  
15 agreed with the value of empirical tests of suggested forensic  
16 feature comparison methods, that is, black box test, many  
17 suggested the validity and reliability of such a method could be  
18 established without actually empirically testing the method in  
19 an appropriate setting. However, PCAST noted notably, however,  
20 none of these respondents identified any alternative approach  
21 that could establish the validity and reliability of a  
22 subjective forensic feature comparison method."

23 It went on to say that after reviewing what they had  
24 received, quote, "There remains confusion as to whether these  
25 elements can suffice to establish validity and degree of

1 reliability of a particular method."

2           Subparagraph 1: "Forensic science literature contains  
3 many papers describing variation among features. In some cases  
4 the papers argue patterns are unique." It goes on, "Such  
5 studies can provide a valuable starting point for a discipline  
6 because they suggest that it may be worthwhile to attempt to  
7 develop reliable methods to identify the source of the sample  
8 based on feature comparison. However, such studies, no matter  
9 how extensive, can never establish the validity or degree of  
10 reliability of any particular method. Only empirical testing  
11 can do so.

12           Conclusion two: "Forensic scientists rightly cite  
13 examiners' experience and judgment as important elements in  
14 their disciplines. PCAST has great respect for the value of  
15 examiners' experience and judgment. They are critical factors  
16 in ensuring that a scientific eval and a reliable method is  
17 practiced correctly. However, experience and judgment alone, no  
18 matter how great, can never establish validity or degree of  
19 reliability of any particular method, only empirical testing can  
20 do so."

21           It then responded to input it received from the  
22 Organization of Scientific Area Committee's Friction  
23 Subcommittee, that's the OSAC, we heard testimony about that  
24 yesterday. The report at page 4 says: "In its response to  
25 PCAST's call for further input, the Organization of Scientific



1 Area Committee's Friction Ridge Subcommittee, whose purview  
2 includes latent fingerprints, raised some very important  
3 issues."

4           They said, "While the OSAC FRS agrees with the need  
5 for black box studies to evaluate overall validity, they  
6 expressed concern that that view could unintentionally stifle  
7 future research aimed at dissecting components of the black box  
8 to transition it from subjective to objective method. As for  
9 the friction ridge discipline, which is different from the tool  
10 marks discipline, PCAST concluded that it applauds the works of  
11 friction ridge discipline which has set an excellent example by  
12 undertaking both, one, path breaking black box studies to  
13 establish validity and equally of reliability of latent  
14 fingerprint analysis; and two, insightful like box studies that  
15 shed light on how latent print analysts carry out their  
16 examination, including forthrightly identifying problems and  
17 needs for improvements."

18           It goes on to say, however, the situation is different  
19 for subjective methods whose validity and degree of reliability  
20 has not been established by appropriate empirical studies. If a  
21 discipline wishes to offer testimony based on the subjective  
22 method, it must first establish the method's validity and degree  
23 of reliability which can only be done through empirical  
24 studies."

25           They then analyzed the challenges to the completeness

1 of PCAST evaluation, page 5, and they said the following:

2 "Finally, we considered the important question raised by the DOJ  
3 in September of whether a PCAST failed to consider numerous  
4 published research studies which seemed to meet PCAST criteria."

5           The analysis goes on: "PCAST reexamined the five  
6 methods evaluated in its report for which the validity and  
7 degree of reliability had not been fully established. We  
8 considered the more than 400 papers cited by the 26 respondents,  
9 the vast majority had already been reviewed by PCAST in the  
10 course of the previous study at the suggestion of John Butler at  
11 the National Institute of Standards and Technology, NIST. We  
12 also consulted Interpol's extensive summary of the forensic  
13 literature to identify additional potentially relevant papers.  
14 Although our inquiry was undertaken in response to the DOJ's  
15 concern, DOJ informed PCAST in late December that it had no  
16 additional studies for PCAST to consider. It then applied its  
17 ultimate amended conclusions to various disciplines."

18           Page 6, it talks about firearms analysis, and it  
19 concluded in its amended report -- addendum to its report. "In  
20 its report PCAST reviewed a substantial set of empirical studies  
21 that had been published over the past 15 years and discussed a  
22 representative subset in detail. We focus on the ability to  
23 associate ammunition not with a class of guns, but with the  
24 specific gun within the class. Firearms discipline clearly  
25 recognizes the importance of empirical studies. However, most

1 studies use flawed designs.

2 "As described in the PCAST report, set based  
3 approaches can inflate examiners' performance by allowing them  
4 to take advantage of internal dependencies in the data. The  
5 most extreme example is the closed set design in which the  
6 correct source of each question sample is always present.  
7 Studies using the closed set design have underestimated the  
8 false positive and inclusive rates by more than one hundredfold.  
9 This striking discrepancy seriously undermines the validity of  
10 the results and underscores the need to test methods under  
11 appropriate conditions.

12 "Other set based designs also involve internal  
13 dependencies that provide hints to examiners, although not the  
14 same extent as closed set designs. To date, there has been only  
15 one appropriate designed black box study, a 2014 study  
16 commissioned by the Defense Forensic Science Center and  
17 conducted by the Ames Laboratory, which reported upper  
18 95 percent confidence bound on the false positive rate of  
19 2.2 percent.

20 "Several respondents wrote to PCAST concerning  
21 firearms analysis. None cited additional appropriate designed  
22 black box studies similar to the Ames Laboratory study."

23 Went on to conclude, "The Organization of Scientific  
24 Area Committee's Firearms and Tool Mark Subcommittee took the  
25 more extreme position that all set based designs are appropriate

1 and that they reflected actual casework because examiners often  
2 start their examinations by sorting sets of ammunition from a  
3 crime scene.

4 "OSAC's FTS argument is unconvincing because, one, it  
5 fails to recognize that the results from certain set based  
6 designs are wildly inconsistent with those from appropriately  
7 designed black box studies; and two, the key conclusions  
8 presented in court do not concern the ability to sort  
9 collections of ammunition as tested by a set based designs, but  
10 rather the ability to accurately associate ammunition of a  
11 specific gun as tested by appropriately designed black box  
12 studies."

13 It went on to say as follows: "Courts deciding on the  
14 admissibility of firearms analysis should consider the following  
15 scientific issues: One, there's only a single appropriate black  
16 box study employing a design that cannot provide hints to  
17 examiners. The upper confidence bound on the false positive  
18 rate is equivalent to an error rate of one in 46.

19 "Two: A number of older studies involved the  
20 seriously flawed closed set design, which has dramatically  
21 underestimated the error rates. These studies did not provide  
22 useful information about the actual reliability of firearms  
23 analysis.

24 "Three: There are several studies involving other  
25 kinds of set based designs. These designs also include," I'm

1 sorry. "These designs also involve internal dependencies that  
2 can provide hints to examiners, although not to the same extent  
3 the closed set designs do. The large Miami/Dade study cited in  
4 the PCAST report and the small study cited by Bunch fall into  
5 those categories.

6           These two studies have upper confidence bounds  
7 corresponding to error rates in the range of one in 20 from a  
8 scientific standpoint, scientific validity should require at  
9 least two proper design studies to ensure reproducibility. The  
10 issue for judges is whether one poorly designed study together  
11 with ancillary evidence from imperfect studies adequately  
12 satisfies the legal criteria for scientific validity. Whatever  
13 the courts decide, it's essential the information about error  
14 rates is properly reported."

15           So that's the -- that's the PCAST in its wake.

16           Now let's turn to this particular case because that  
17 general background is important in terms of my cast under Rule  
18 104(a) when deciding whether or not Mr. McVeigh can testify, and  
19 if so, as to what.

20           First of all, as to his qualifications. There has  
21 really not been much challenge to his qualifications. I will  
22 say again on this record that I've been a judge for 21 years,  
23 and I've been a trial lawyer for almost 50. And I have seldom  
24 seen an expert as candid, forthright, acting without a shred of  
25 being defensive, trying his hardest to understand questions,

1 respond without being argumentative.

2           It appears as though Prince George's County and the  
3 people of Maryland are lucky to have a person of his integrity  
4 and dedication working for the crime lab in Prince George's  
5 County. There is no challenge to his qualifications. Although  
6 he's not a member of the AFTE, he took their instruction, he's  
7 been qualified by his lab, and he has done the examination in  
8 this case based upon what he has identified in terms of his  
9 training and experience. So I find easily that he has the  
10 knowledge, training, experience, background, education and skill  
11 to testify in the form of an opinion or otherwise.

12           The next thing I have to talk about is whether he has  
13 sufficient data to base his test. The challenge really hasn't  
14 been to the sufficiency of the data, but rather to the  
15 reliability or the methodology and whether it was reliably  
16 applied.

17           In doing that, I want to start with his examination  
18 report. This is Exhibit 5 to ECF number 78. It's a series of  
19 documents, the report itself, that begin at Bates number JLM  
20 00773 through really 782, are the guts of it, and I'm going to  
21 go through those briefly now.

22           Page 773 reports the result of examination. He says  
23 there are five fired cartridges. I'm leaving portions of it  
24 out. They were microscopically intercompared to test fire  
25 exemplars from the Rock Island Armory pistol recovered from the

1 incident.

2           Quote: "The referenced items from incident A were  
3 identified as having been fired in from the referenced pistol  
4 from incident B." And there are no further grafts or anything  
5 else, that's what I would call face sheet of the conclusion  
6 sheet.

7           Page 774 is a result of the examination. He says  
8 there are five fired cartridge cases, PW 1 through PW 5, and two  
9 bullet items, PW 6 and PW 7, recovered in incident A that were  
10 microscopically intercompared to test fire exemplars from the  
11 Rock Island Armory brand pistol. And there's some more  
12 non-opinion information, and it then concludes the referenced  
13 items from incident A were identified as having been fired in  
14 from reference pistol from B.

15           And below it there's a series of initials. It says,  
16 FCC's, which he testified were fired cartridge cases. BFI,  
17 breach face impression, which he testified were marks on the  
18 rim, and marks at the rim. And he just identifies those. So  
19 presumably you can infer from that that that's what he looked at  
20 when he was reaching his conclusion. Bullets, and then it says,  
21 L-I-M-P-S, which stands for land impressions.

22           Now, significantly, although this does explain what  
23 his opinion is, gun -- incident B gun produced was the gun from  
24 which incident A bullet portions were fired from. What he  
25 doesn't do is provide the analysis of how he reasoned from the

1 look at the bullet fragments to these conclusions. We know that  
2 he looked at fired cartridge cases. But that doesn't tell us a  
3 lot. He looked at the breach face impressions, that narrows it  
4 down, and marks on the rim, which further narrows it down.

5 But there are marks not only on the rim, but on the  
6 cylinder part of the cartridge, and we know, as I quoted from  
7 *Willock*, that from publications going back to the 1950's, there  
8 is a large number of similar marks on items known to have been  
9 produced by different firearms. And a equally large number of  
10 marks on bullet components fired from the same firearm that are  
11 not similar.

12 And what we don't know is from this face sheet or from  
13 the photographs is when you line up a portion of the firearm  
14 component looked at, and you look to see lines that seem to come  
15 together and lines that don't, which ones were the ones that he  
16 relied upon in reaching his conclusion that there was sufficient  
17 agreement. Take a look at 775.

18 First of all, the one on the left is at 36  
19 magnification. It's at the rear of the cartridge, and it is a  
20 portion that looks like about 25 percent of what the actual  
21 cartridge, a back look like. If you take a look at it, there  
22 are lines that sort of seem to go from -- and there's about a  
23 40 percent portion of the left-hand side of the picture that's  
24 from the one sample, and on the other side about 60 percent from  
25 the other. And collectively put together they look to be about



1 roughly 25 or so percent of the back of a bullet that you would  
2 look at if you were holding it up and looking at where the  
3 firing pin connects the rim.

4           Some lines start from the one sample and go all the  
5 way through to the other, but others start on one and don't go  
6 all the way through so it's possible to look at this and say,  
7 well, those are ones that don't match up, but these are ones  
8 that do match up, and some of the ones that match up are at the  
9 top and at the bottom and sort of in the middle part a little  
10 bit here and there, but others that do not.

11           Now, how do I know that the numbers that match are  
12 consistent with the numbers that match on cartridges known to be  
13 fired from the same gun, and that the numbers that don't match  
14 are less than the numbers that are known not to match from those  
15 fired by different guns.

16           If you look to the picture on the right, it's even a  
17 smaller portion of the cartridge. It's a very small part of the  
18 circular rim. In fact, it doesn't even look circular. It looks  
19 sort of like an almond shaped component that is obviously just a  
20 very small portion. It's also at a much higher -- it's at 56  
21 level of magnification. Again, if you look at the part on the  
22 left, there's some parts that seem to go clear through to the  
23 one part on the right, but there's some other parts that don't  
24 seem to do that.

25           And then there's some parts below that are dark and

1 you can't really tell what they show. Again, how do I know how  
2 you find that there were enough similarities to be consistent  
3 with similarities from bullets fired from the same gun and  
4 greater than the number of similarities known to exist in  
5 bullets fired from different guns? There's no way I know that,  
6 nor does the report explain that to me.

7           The same can be said at page 776. At 777, there are  
8 conclusions. The same one fired from the same unknown firearm.  
9 There's no photographs here. It does talk about what items were  
10 looked at, but again, it doesn't provide any explanation.

11           You have on page 778 the fired cartridge case  
12 worksheet. That, of course, provides data regarding the kind of  
13 ammunition. And it says notes, the micro shows it was  
14 identified as having been fired by the same unknown firearm, but  
15 it doesn't explain how this data supports that conclusion. Same  
16 with 779, same with 780, same with 781.

17           On 782, we had certain measurements that were taken  
18 that were fed into the NIBIN system, and it resulted in a  
19 reporting of the other types of firearms that could produce  
20 those same characteristics. And there were a total of 33  
21 manufacturers listed that did not include the one that we know  
22 manufactured the firearm.

23           Now, I'm not -- it appears as though what Mr. McVeigh  
24 did is consistent with the internal procedures from his lab, and  
25 indeed, when his lab has been audited by others who do this kind

1 of lab work, they've said that your paperwork is sufficient.

2           It was interesting that he testified that when he was  
3 reviewed, what the reviewer did was he would frequently just  
4 have the microscope up and say, hey, Bill or Mary or whatever,  
5 come on over and take a look at this. They would look at the  
6 same microscope at the actual evidence, make their own  
7 determination and say thumbs up or thumbs down.

8           But that's not what the standard from the AFTE says,  
9 and that's not what the advisory note to Rule 702 says. It says  
10 that, "When you're basing it upon a subjective analysis and  
11 experience, the actual notes have to tell you how you applied  
12 the methodology to the facts and made that result," and simply  
13 saying, well, I don't tell out the one, the number of marks on  
14 there because there were so many, I just line them up and I can  
15 look at them, in my mind that does not meet what the Advisory  
16 Committee required, it does not provide enough information to  
17 show how the methodology was applied in this particular case.

18           Similarly, the peer review, so to speak, is reviewed  
19 by another examiner from the same office. There was also one  
20 from, I think the District of Columbia, whose initials were put  
21 on there. We don't have any separate reports from them, and  
22 what it appears as though is that they didn't look at just the  
23 report itself and go back to see whether they agreed with the  
24 results, they rather looked at the ammunition. And that, that  
25 is in my mind the concern that I have about the methodology and

1 the application of the methodology to the facts.

2           So where does this leave me? The one thing that I  
3 said in the *Willock* decision, my recommendation to Judge Quarles  
4 and what I repeat now is that as PCAST sort of recognizes,  
5 they're looking at this area through the lens of science, and  
6 it's pretty clear that they say that for this kind of subjective  
7 analysis, you must have empirical research, it's got to be black  
8 box, you got to have the right error rates, the design has got  
9 to be such that it mirrors real life. That makes all the sense  
10 in the world to me for science, but they drew the line by not  
11 telling judges, this is what you should do, and they made that  
12 very clear throughout.

13           So what I'm left with is, with what I have from an  
14 admittedly qualified and dedicated examiner in a case, is there  
15 anything about this evidence that will pass muster from a point  
16 of view of 702. And here I come back to one of the questions I  
17 asked Mr. Oppenheimer because if we didn't have any expert at  
18 all, but we knew that there was a .45 that was the caliber of  
19 the handgun, and a .45 is found with the defendant, and if we  
20 knew that the cartridges found at the crime scene were  
21 Winchester and that the cartridges found in the handgun were  
22 Winchester, and if we knew that there were other similarities,  
23 juries have throughout the history of this country been able to  
24 independently determine the authenticity under Rule 901(b)(3) by  
25 looking at known samples and unknown samples and deciding for

1 themselves whether or not they were from the same source.

2 That's an accepted way of authentication.

3           And certainly would it be helpful for the jury to know  
4 that I've already ruled that the .45 comes in as being something  
5 taken from the possession of the defendant, he pleaded guilty to  
6 having it in D.C. Superior Court, and the search was a valid  
7 search, I found. That was objected to, but I overruled that  
8 objection.

9           So we know that the gun was found with the defendant,  
10 and we know that we have bullets that were found from the crime  
11 scene, we know we have bullets that were found from the gun.  
12 And I don't see any reason why it would not be helpful to the  
13 jury for Mr. McVeigh to testify with his photographs and  
14 matching up the marks that he saw that were similar and pointing  
15 out the characteristics that were similar between the firearm  
16 cartridges fired at the scene and what was test fired, subject  
17 to cross-examination, subject to Evidence Rule 803(18), the  
18 learned treatise hearsay exception, where certainly a defense  
19 can read into the record, and 803(18) says, "To the extent  
20 relied upon by an expert during direct examination or called to  
21 the attention on cross-examination, learned treatises," which I  
22 find the PCAST reports would be, "can be read into the record."  
23 And whether or not Mr. McVeigh acknowledged them or not, that's  
24 evidence that comes in and can be read to the jury so they can  
25 understand.

1           In addition, certainly Mr. Nixon can testify at trial,  
2 if that's what the defense wants him to do.

3           In addition, I believe that it would be appropriate  
4 for Mr. McVeigh to be able to express an opinion that the marks  
5 that were produced by the -- that were found on the crime scene  
6 cartridges are consistent with the marks that were found on the  
7 test fire from the .45 known to be associated with the  
8 defendant, but I will not permit him to express the opinion that  
9 they were fired by the same gun, and I will not permit him to  
10 express any confidence level as to it.

11           So -- so we're here clear on what I'm ruling. Mr.  
12 McVeigh can testify. Now, his qualifications are subject to  
13 being brought out before the jury by the government and  
14 challenged or cross-examined by the defense. He can talk about  
15 what he did and what he tested and what he looked at. He can  
16 put up his pictures. He can show the similarities between one  
17 and the other, and he can even express the opinion that the  
18 marks from the .45 that he test fired, the marks on the  
19 cartridges are consistent with the marks on the other one that  
20 were found at the crime scene, but I won't allow him to express  
21 the opinion that they were produced by the same gun, and I won't  
22 allow him to express a confidence level as to his opinion.  
23 That's as far as his opinion can go.

24           The defense will be able to cross-examine, offer under  
25 803(18) information as learned treatises. On rebuttal, the

1 government may offer any of the studies that they thought were  
2 helpful under 803(18) if they want to do that. Be aware,  
3 counsel, that when you're doing that, the jury doesn't get to  
4 see them.

5           Probably you've been -- you either have appeared to  
6 stay awake or have resisted the soporific [ph] soporific,  
7 excuse me, effect of my language, reading to you from all these  
8 different studies, but be aware that the jury may not have the  
9 same intestinal fortitude, so I would keep my readings focused,  
10 but that is what I believe is appropriate. And why do I say  
11 that?

12           While I am informed by the PCAST analysis, and I think  
13 that from the perspective of science they raise legitimate  
14 issues, I'm not prepared to say that you got to throw the baby  
15 out with the bath water, particularly when you have a dedicated  
16 and honest broker like Mr. McVeigh, who is straightforward in  
17 what he did and can point out why he drew the observations that  
18 he did from the test samples and from the firearm exemplars and  
19 properly restrict it in terms of the scope of what he can tell  
20 the jury, that that would be helpful to the jury because the  
21 jury itself can look at known and unknown samples and decide  
22 whether it came from the same gun under Rule 901(b)(3). And so  
23 that's something that's been allowed by the Rules of Evidence  
24 independently of Rule 702.

25           Secondly, I have to note that not every court in the

1 United States has followed what PCAST said. Government cited a  
2 case from the Northern District of California that said, well,  
3 we don't care what PCAST said, we're going to let it in because  
4 it's always been let in. Respectfully, I disagree. The judge's  
5 job would be easy if all we could do is say courts have always  
6 done, I'm going to do it again. That's where I was in 2010, I'm  
7 not there anymore.

8           2010, I observed that despite growing concern by the  
9 courts, no American court that I was aware of had totally  
10 excluded the evidence, at most they had restricted what the  
11 expert can testify, which is consistent with my ruling today,  
12 but you can't ignore what the issues were that were raised by  
13 PCAST, and I can say that it takes some time sometimes for the  
14 courts to come to bear and to take knowledge of what's going on,  
15 and the mere fact that twice out of 80 times Mr. McVeigh has had  
16 to go through this exercise is evidence of the fact that most  
17 courts do not do it. They don't have the circumstance where  
18 they have defense counsel that have the resources and the  
19 dedication to bring the issues, and they can't find an expert to  
20 testify and provide them with help, and so the evidence rolls  
21 in.

22           The PCAST report is not the end of the story, but it  
23 does show that there are issues associated with the validity of  
24 the underlying subjective assumption that this science rests on.  
25 I'm convinced that the similarities of the characteristics and



1 the scope of what I've allowed Mr. McVeigh to testify to is  
2 sufficiently helpful, does pass muster under, not only 702, but  
3 other rules as well, and that with experienced and focused  
4 cross-examination from lawyers who have clearly prepared  
5 themselves for the task, that the weight that can be given to  
6 the evidence I permit will be a point for argument with the  
7 jury.

8           Now, Mr. Oppenheimer, if you want to propose a jury  
9 instruction, I'll take a look at it. Whether this is  
10 appropriately handled by a jury instruction or by a limiting  
11 instruction when the evidence comes in, we can deal with later,  
12 but for right now I understand that you've suggested that. I  
13 haven't seen it, and we'll have plenty of time during the trial  
14 to deal with post-jury instructions. So that's by ruling on  
15 this motion.

16           I had hoped to be able to write an opinion, but with  
17 the other work that I have and the other work that we have in  
18 this case, I'm likely not to get to it so this transcript will  
19 be my opinion. I may come up with a very brief one pager that  
20 says for the reasons I stated on the record which are adopted  
21 and incorporated by reference, this is my ruling, but my ruling  
22 should be fairly clear, I hope, to both the United States and  
23 Mr. Oppenheimer. Are there any questions about what my ruling  
24 is?

25           (Pause.)

1 MS. KAPLAN: No, Your Honor, we're just taking a  
2 moment to make sure we --

3 THE COURT: No, that's all right, take whatever time  
4 you want. You got to live by it, you might as well make sure  
5 you understand what it is.

6 (Pause.)

7 THE COURT: While the government is looking at its  
8 notes, are there any questions from defense in terms of my  
9 ruling?

10 MR. OPPENHEIMER: If I could have one more moment  
11 here, Your Honor. I just want to make sure I --

12 THE COURT: Yes.

13 (Pause.)

14 (Brief recess.)

15 THE COURT: All right. Any questions from the  
16 United States regarding my opinion?

17 MR. NAUVEL: Yes, Your Honor. A couple brief  
18 questions. I think you've gotten to know just a little bit, Mr.  
19 McVeigh, over the past couple of days, and he's very concerned  
20 with respecting your order and following it to the letter. But  
21 he's also raised concerns also which I'll relay to you, which is  
22 that he is concerned with his ethical obligations outside of the  
23 testifying piece, outside of the courtroom, and more  
24 specifically, AFTE provides a range of conditions, a range of  
25 conclusions, and three conclusions I think you heard him testify

1 to were identified, eliminated, inclusive. And he's also  
2 concerned about his protocols, which make similar type of  
3 points, so all this to say, the question is, is it consistent  
4 with your ruling to say --

5 THE COURT: Well, let me see if I can -- he can  
6 certainly say he did not eliminate this gun. He can certainly  
7 say that his -- his views are not -- well, I would say this: He  
8 is -- he has not eliminated his gun as having made it. I think  
9 if he says that he did reach a position that it was not  
10 inconclusive, then I don't want to get close to what I said he  
11 can't go beyond. And he can certainly say that he did not  
12 eliminate this gun as being a possible source to it, but that  
13 the best he can say is that, you know, and if you want him to  
14 say that I, you know, something to the effect of that the Court  
15 has instructed him to, you know, that he can say that it's  
16 consistent with or you can frame the question so that he is  
17 responding directly to your question.

18 I don't want to -- I certainly understand that he made  
19 different opinions I'm not letting him put in, and if he is  
20 faithful to my ruling, it's not because he's done anything  
21 wrong, it's because I've ordered it, and he's complying with the  
22 Court Order. I think the way it can be handled is, is that, you  
23 know, it can be done in a question, do you have an opinion that  
24 you can express to the jury as to whether the marks on the  
25 bullets fired by the gun are consistent with the marks found on

1 the other one. And then he can say obviously he thinks it's  
2 consistent, that's part of what his opinion was, it's just not  
3 expressed in the terminology that he's accustomed to using.

4 So he's nodding his head, I think he understands that.  
5 I think the best way to handle it is by a question posed by the  
6 government to allow him to make that specific response.

7 MR. NAUVEL: Could he say that they are -- the -- that  
8 the marks have been identified, have been identified as being  
9 consistent with the marks on the test fire?

10 THE COURT: In his opinion, the marks on the test fire  
11 are consistent with the marks he found -- with these marks that  
12 he found on the exemplars.

13 Now, the defense can say, well, it's not consistent  
14 with this one, that one and the other one, but you can say it  
15 that way, yes. He just can't say it's from the same gun, and he  
16 can't say his confidence level.

17 MS. KAPLAN: So, to the extent the word "identify" has  
18 particular meaning within his field, and, Mr. McVeigh, if you  
19 would come right up here in case I lose it, you can whack me on  
20 the shoulder.

21 So I think what he asked us is can he say that in his  
22 opinion the marks on the bullets fired from the gun have been  
23 identified as being consistent with the marks on the bullets  
24 recovered from the crime scene. I don't know that that is  
25 meaningfully different from what Your Honor has suggested, it

1 just includes that would identify, which I think is important  
2 for your working with.

3 THE COURT: Yeah, explain what your concern is, sir.

4 MR. McVEIGH: Oh, just the points between the two  
5 points, what counsel just said regarding identified as having  
6 consistent with or is sufficient to replace the word  
7 "identified" with the phrase "consistent with" to honor your  
8 ruling.

9 THE COURT: Yeah, for my ruling I'm substituting the  
10 word "identify," which is a word of art that you -- when you say  
11 identify, it's the same thing as saying in my opinion it's the  
12 same gun, right? That's what it means. I'm not going to allow  
13 you to say that, but you can say that -- and you can point to  
14 the marks and say these marks here, here, here, here, here, are  
15 consistent with marks made from the gun.

16 MR. McVEIGH: That's the clarification.

17 THE COURT: And that's what I'll allow you to do, and  
18 you can point out however many of them. You can say there's so  
19 many of them, there's just this, this and this, but he gets to  
20 cross-examine on the ones that don't match, and he can  
21 cross-examine and read into the record the, you know, all the  
22 studies and everything else that he wants, and he can call his  
23 own expert to say no, it's not. So that's what I'm going to  
24 allow to have happen.

25 MR. McVEIGH: Thank you, Your Honor.

1 THE COURT: Anything further from the government?

2 MS. KAPLAN: And so for him to say the marks on the  
3 bullets recovered from the crime scene are consistent with the  
4 marks made from the gun would be an appropriate way for him  
5 to --

6 THE COURT: Are consistent with these marks,  
7 particular marks. I'm going to allow him to identify which  
8 marks he says are consistent, not just a general thing that are  
9 consistent with the same one. Because that's seems to be the  
10 ultimate conclusion, I'm not going to allow him to say.

11 MS. KAPLAN: Okay.

12 THE COURT: And what he will then do is have the  
13 opportunity to point out to the jury what his mind is saying to  
14 him when he looks at it and why those are to him marks that are  
15 consistent marks, the same marks, consistent means the same.  
16 This mark here is consistent with the mark here, you can see it  
17 starts over here, runs all the way over there, it kind of gets  
18 scrambled here. This is a dark zone in here, we don't see it  
19 going over, but look down here we see it, all that is just  
20 comparison, known to unknown. And the jury can draw whatever  
21 inferences. And he gets the benefit of being able to explain --  
22 I mean, he gets to talk about, he can talk about class  
23 characteristics and subclass characteristics and individual  
24 characteristics and the phraseology. He can talk about, you  
25 know, the microscope and how he got them and test fired, and

1 explain how he got these two things and how the comparison  
2 microscope works and the different powers and everything, and  
3 take the laser thing.

4 I don't know how we're going to get that precision on  
5 the screen with high def, but I leave that up to you. Maybe  
6 you'll have to bring in a HD TV in here or something, I don't  
7 know.

8 You can laser print and go through that, and the  
9 defense can move wherever it needs to move to see it, and he can  
10 spend whatever time is reasonable identifying how this mark  
11 connects with that mark, and we're looking over here, and you  
12 can see right here, and these, the marks are consistent. These  
13 are the marks that we know came from a cartridge fired from the  
14 gun that was recovered, and these are consistent with those, see  
15 how it goes there, there, there, that's what I'm allowing him to  
16 do.

17 MR. NAUVEL: Okay. And then, Your Honor, I honestly  
18 don't know whether this is required or not, but to the extent  
19 that the government needs to object to preserve any kind of --

20 THE COURT: Let me make it clear. My ruling is a  
21 Federal Rule of Evidence 103 pretrial definitive ruling on the  
22 record which preserves your ability to be able to say I'm  
23 completely wrong in the event that there's an appeal taken from  
24 this case by the government, and those who are smart and wiser  
25 than me down in Richmond can decide whether I made a mistake or

1 not. But by making it a pretrial definitive ruling on the  
2 record in accordance with Rule 103, it prevents you from having  
3 to offer the evidence, get an objection, and having me rule at  
4 trial.

5 MR. NAUVEL: Thank you, Your Honor.

6 THE COURT: And if you have any question about that,  
7 take a look at Rule 103 and you'll see it's not one of those,  
8 oh, I'm kind of leaning this way, but let's see what happens at  
9 trial. This is definitive in pretrial. The whole purpose of  
10 that change which came in in, I think 2000, or one of the 1990  
11 changes was to preserve the record so that you now know it's a  
12 definitive ruling, not a "I'm inclined to" ruling.

13 MR. NAUVEL: Okay, thank you, Your Honor.

14 THE COURT: And it is important to preserve it, so I  
15 think you've done that.

16 Mr. Oppenheimer.

17 MR. OPPENHEIMER: I think you addressed it, Judge, the  
18 use of the word "identified" is what made me stand.

19 THE COURT: We've identified that as a word that's not  
20 going to be used.

21 MR. OPPENHEIMER: And then I guess I just want to be  
22 sure that the opinion is couched in terms of an opinion. The  
23 language we've been using is that the marks are consistent,  
24 insinuating are, in fact, consistent with as opposed to his  
25 opinion.



1 THE COURT: Well, I think that the way to queue it up  
2 is for counsel to say, do you have an opinion whether the marks  
3 that you've identified as having been made by the test fire of  
4 the gun are consistent with the marks that you described to the  
5 jury on the bullets recovered at the scene?

6 Yes, I have an opinion.

7 What is your opinion?

8 It's consistent.

9 Do you wish to explain?

10 And by then he would have gone through it all again.  
11 And he's not going to repeat it all, but that's the way to  
12 phrase it so that the question is a specific response to a  
13 question posed by counsel, and I think that should address your  
14 issue.

15 MR. OPPENHEIMER: I have nothing further.

16 THE COURT: So, on the Rule 61 was the defendant's  
17 prior convictions. We've agreed that we're not --

18 Mr. McVeigh, thank you very much, sir.

19 MR. McVEIGH: Thank you, Your Honor.

20 THE COURT: I appreciate, you had a long couple of  
21 days, and I appreciate your perseverance, sir.

22 MR. McVEIGH: Thank you.

23 THE COURT: We've agreed that the homicide conviction  
24 is not going to be brought in for 404(b) purposes, right?

25 MR. NAUVEL: Yes, Your Honor.

1 THE COURT: And we've agreed that we're not going to  
2 mention parole status.

3 MR. NAUVEL: Yes, Your Honor.

4 THE COURT: But we do have to get the felony  
5 conviction in for the felony in possession, and I thought that  
6 the only open issue was, are you working on a stipulation of  
7 that?

8 MR. NAUVEL: Yes, we're working on stipulations, and  
9 we apologize, Your Honor, we actually have not, all four of us  
10 had an opportunity --

11 THE COURT: I understand that.

12 MR. NAUVEL: But we do, having discussed with the  
13 defense, we do anticipate having these issues resolved before  
14 the time --

15 THE COURT: I just don't want to miss it between now  
16 and -- we have one more hearing that we have to get through.

17 MR. NAUVEL: Right.

18 THE COURT: And I am planning on writing an opinion on  
19 that one.

20 MR. NAUVEL: Okay.

21 THE COURT: Now, Ms. Kaplan, are you here just as a  
22 guest appearance or are you -- I understand Mr. Sullivan has  
23 been chased out to the Senate Judiciary Committee.

24 MS. KAPLAN: I am in this for the long haul, Your  
25 Honor, and I'm attempting to get up to speed as quickly as

1 possible.

2 THE COURT: Well, you have -- there's an old  
3 expression that you'd be blessed with an interesting case. This  
4 is an interesting case. You have very skillful, but very  
5 professional opposing counsel, and you have a very skillful and  
6 very articulate co-counsel, so I have no doubt that in the time  
7 that we have remaining that everyone will be able to continue in  
8 that vein with the excellent work that both sides have been  
9 doing.

10 Mr. Lassiter.

11 MR. LASSITER: I was only standing in regards to the  
12 stipulation question. I didn't know whether you wanted to hear  
13 from my side or not. I don't have anything to add at all.

14 THE COURT: You're working on the issue.

15 MR. LASSITER: Yes.

16 THE COURT: Okay. Anything further, folks? I think  
17 I've taken enough of your time the last couple of days.

18 Thank you all very much for your hard work. This is  
19 exhausting, and both of you have done fabulous -- all of you  
20 have done fabulous work on this, so thank you.

21 (Court recessed at 3:57 p.m.)

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CERTIFICATE OF COURT REPORTER

I, Linda C. Marshall, certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

/s/

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Linda C. Marshall, RPR  
Official Court Reporter

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