

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 [The R.M.C. 803 session was called to order at 0900,  
2 07 December 2021.]

3 MJ [COL ACOSTA]: This commission is called to order.

4 Trial Counsel, good morning again. Please identify  
5 who's here on behalf of the United States, and whether they  
6 are located here or appearing remotely from the RHR in -- in  
7 the National Capital Region.

8 TC [MR. MILLER]: Good morning, Your Honor. These  
9 proceedings are being transmitted via CCTV to locations in the  
10 United States pursuant to commission's order AE 028M dated  
11 22 November 2019. Obviously, the closed proceedings will not  
12 be transmitted.

13 Present for the United States in the courtroom, Your  
14 Honor, as identified in AE 338L, Lima, detailing memorandum  
15 dated 20 September 2021 are myself, Mark Miller; Mr. John  
16 Wells; Lieutenant Commander Cherie Jolly; Lieutenant Commander  
17 Keven Schreiber; Major Michael Ross. Major Jeffrey Benedict  
18 is absent and will not appear during these sessions.

19 Also present for the prosecution, Your Honor, are  
20 Mr. Forrest Parker Smith, Mr. Louis Hracho Marmo, Ms. Joleen  
21 Sanders, Chief Kenneth Traylor, Staff Sergeant Carlos Salazar,  
22 and our interpreter, [REDACTED]. All persons have the  
23 necessary clearances, Your Honor.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 MJ [COL ACOSTA]: Thank you, Counsel.

2 Defense counsel?

3 LDC [MR. NATALE]: Good morning.

4 MJ [COL ACOSTA]: Please account for the members of the  
5 defense team, whether they are located here or remotely --  
6 appearing remotely from the Remote Hearing Room.

7 LDC [MR. NATALE]: Good morning, Your Honor. Anthony  
8 Natale on behalf of Mr. Nashiri. Present here in the  
9 courtroom are the following individuals, all of whom have the  
10 proper qualifications: Captain Mizer, Ms. Carmon, Ms. Morgan,  
11 Mr. Dolphin, who will be coming in and out and is not present  
12 here, but I'd like to report that he is someone who will be  
13 coming; Ms. Janes; Mr. Hoffmann; and Mr. Roy, who will also be  
14 coming to and fro, along with our interpreter.

15 In the RHR, we have Commander Piette, Ms. Hon, H-O-N,  
16 and Ms. Pinate. All of these individuals, as I said, are duly  
17 qualified and have all of the necessary clarification --  
18 excuse me, classifications in order to be present.

19 MJ [COL ACOSTA]: Thank you, Mr. Natale.

20 Counsel, as a reminder, my expectation regarding the  
21 use of the Remote Hearing Room, is that the RHR is, and is  
22 considered by me, an extension of the well of this courtroom.  
23 Therefore, only personnel that are authorized to be in the RHR

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 during hearings of this commission are those individuals that  
2 would be permitted to sit in the well here in this courtroom.  
3 That would include members of each respective team and their  
4 consultants, as well as the chiefs of the OCP and the -- and  
5 the Military Commissions Defense Office.

6           Anyone who would not ordinarily be authorized to sit  
7 in the well of this courtroom are not authorized to view the  
8 proceedings in the RHR. It is not an alternative viewing  
9 location; it is a remote hearing location. Anybody else that  
10 wishes to just observe the proceedings should observe them  
11 from one of the other designated alternative viewing areas.

12           Mr. Nashiri, good morning again. I will now advise  
13 you of your right to be present and to waive said presence.  
14 You have the right to be present during all sessions of the  
15 commission. If you request to absent yourself from any  
16 session, such absence must be voluntary and of your own free  
17 will.

18           Your voluntary absence from any session of the  
19 commission is an unequivocal waiver of the right to be present  
20 during that session. Your absence from any session may  
21 negatively affect your -- the presentation of the defense in  
22 your case. Your failure to meet with and cooperate with your  
23 defense counsel may also negatively affect the presentation of

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 your case. Under certain circumstances, your attendance at a  
2 session can be compelled regardless of your personal desire  
3 not to be present.

4           Regardless of your voluntary waiver to attend a  
5 particular session of the commission, you have the right at  
6 any time to decide to attend any subsequent session. If you  
7 decide not to attend the morning session but wish to attend  
8 the afternoon session, you must notify the guard force of your  
9 desires. Assuming there's enough time to arrange  
10 transportation, you will then be allowed to attend the  
11 afternoon session.

12           You will be informed of the time and date of each  
13 session of the commission prior to the session to afford you  
14 the opportunity to decide whether you wish to attend that  
15 session.

16           Do you understand what I just explained to you?

17           ACC [MR. AL NASHIRI]: **[Speaking in English]** Yes.

18           MJ [COL ACOSTA]: I'm now going to summarize the last  
19 three R.M.C. 802 conferences I've conducted with counsel since  
20 the last time we were on the record.

21           On 26 October 2021, I conducted an R.M.C. 802  
22 conference with counsel for both sides, and we discussed the  
23 following: The logistical issues for this hearing, set a

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 deadline for 505(g) notice -- notices. We discussed use of  
2 the RHR and set a deadline for expert testimony notices. We  
3 also discussed the defense's current meeting place with their  
4 client, the status of the al-Gila deposition, deferring two of  
5 AEs to 2022 for hearing, and that the defense would supplement  
6 AE 354 with a request for a new witness.

7 We discussed the order that we would take up the  
8 motions at this hearing in the two weeks that we have,  
9 depending on availability of witnesses for either side. We  
10 discussed what issues that would need to be resolved before  
11 doing -- that needed to be resolved before hearing the hearsay  
12 admissibility motion originally raised in AE 166.

13 On 23 November, we conducted another 802 conference.  
14 Again, we discussed the use of the RHR by witnesses and  
15 non-witnesses. We discussed which witnesses were expected to  
16 testify and their availability. The parties agreed to  
17 exchange visual aids or exhibits by the 28th of November 2021.  
18 We discussed the -- conducting another 802 once we got here  
19 and as well as our -- the plan for the defense to tour  
20 Camp VII. Then we also discussed that the 505(h) hearing that  
21 we are going to conduct later today would not be conducted in  
22 the RHR.

23 On 4 December, due to a delay in travel, I conducted

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 another R.M.C. 802 conference with counsel where we discussed  
2 the plan for yesterday and today and the ordering of events.

3 Do counsel have anything they'd like to add or  
4 objections to make to my summary of the 802 sessions?

5 TC [MR. MILLER]: None by the government. Thank you, Your  
6 Honor.

7 MJ [COL ACOSTA]: Defense?

8 LDC [MR. NATALE]: None by the defense.

9 MJ [COL ACOSTA]: All right. I'll also note that I -- as  
10 we landed on the plane here, it was announced that the mask  
11 mandate for this installation has been lifted. I will note  
12 that that is a -- because of the -- I believe it is -- the  
13 commander lifted it because this is a low-transmission area  
14 and the CDC guidance allows for -- the CDC guidance and the  
15 DoD guidelines from 28 July states that in  
16 low-transmissibility areas, you can remain unmasked indoors.  
17 However, everybody that I'm looking at at the tables in front  
18 of me all traveled immediately from a high-transmissibility  
19 area. And I don't think that -- I -- in an abundance of  
20 caution, I require all to be masked in the courtroom while  
21 we're here unless they're speaking at the podium or if they're  
22 a witness.

23 So if you wish to -- when you go to argue or to

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 examine a witness, you may go to the podium and take your mask  
2 off there, and the witnesses will, of course, have no mask on  
3 as well. The remainder of the individuals in the courtroom  
4 will keep their mask on at all times.

5 Counsel, we previously discussed the need to enter  
6 into a closed M.C.R.E. 505(h) hearing to discuss the use of  
7 classified information related to the motions to -- a couple  
8 of the motions that we're going to take up during this session  
9 of the commission.

10 Do counsel have anything else that we should take up  
11 before we move into that closed M.C.R.E. 505(h) hearing?  
12 Defense?

13 LDC [MR. NATALE]: No, Your Honor.

14 MJ [COL ACOSTA]: Government?

15 TC [MR. MILLER]: Nothing from the government. Thank you,  
16 Your Honor.

17 MJ [COL ACOSTA]: All right. Mr. Nashiri, we're now going  
18 to conduct a closed M.C.R.E. 505(h) hearing to evaluate the  
19 use, relevance, and admissibility of some classified  
20 information noticed by your defense counsel for the purposes  
21 of me resolving motions made on your behalf. This hearing  
22 will be held in camera, which means it will be closed to both  
23 you and to the public. Do you understand that?

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 ACC [MR. AL NASHIRI]: [Nods head.]

2 MJ [COL ACOSTA]: Right now, the expectation is that we  
3 will reopen the proceedings, that we should be able to conduct  
4 the 505(h) hearing in approximately -- due to the logistics of  
5 the court reporters, it takes about 30 minutes before we can  
6 start the M.C.R.E. -- the 505(h) hearing to allow that to  
7 happen. So we're going to recess for 30 minutes to allow that  
8 to be set up.

9 We should be able to finish that hearing prior to any  
10 lunch break. I anticipate counsel -- government, defense, do  
11 you agree that we should be able to finish that before lunch?

12 TC [MR. MILLER]: Yes. We hope to, Your Honor.

13 MJ [COL ACOSTA]: Defense?

14 LDC [MR. NATALE]: Yes, Your Honor.

15 MJ [COL ACOSTA]: And that we will -- we'll reconvene at  
16 1300 with the nonclosed portions of the hearings that we're  
17 going to conduct.

18 All right. With that, the commission will now be in  
19 recess to allow for the preparation of the closed session.  
20 The commission is in recess.

21 [The R.M.C. 803 session recessed at 0911, 07 December 2021.]

22 [The R.M.C. 803 session was called to order at 1210,

23 07 December 2021.]

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 MJ [COL ACOSTA]: The commission is called to order.  
2 Government, can you please account for parties after the  
3 recess.

4 TC [MR. MILLER]: Good afternoon, Your Honor. The parties  
5 that were here this morning, myself, Mr. Wells, Lieutenant  
6 Commander Jolly, Mr. Schreiber, Major Ross are all present, as  
7 are Forrest Parker Smith, Ms. Sanders, Sergeant Salazar, and  
8 we anticipate our interpreter, [REDACTED].

9 Mr. Marmo is not present this afternoon, tending to  
10 other duties, as is Chief Kenneth Traylor. In his place is  
11 Master Sergeant Laura Speranza. Also, Your Honor, present in  
12 the back of the courtroom are Special -- Supervisory Special  
13 Agent Luke Hardison, the case agent in this matter. He's  
14 assisted by Ms. Kymberleigh Albites, also the FBI. There are  
15 two FBI OGC lawyers here, Frederic Gallun and Audra O'Brien.  
16 Two experts who are here to assist the government in its -- in  
17 this motion hearing, Ellen Giusti and Lisa Grossweiler are  
18 also present.

19 All persons have the necessary clearances to be  
20 present in the courtroom.

21 These proceedings are also being transmitted via CCTV  
22 to locations in the United States pursuant to your order.

23 Thank you.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 MJ [COL ACOSTA]: Defense?

2 LDC [MR. NATALE]: Good afternoon, Your Honor. Anthony  
3 Natale on behalf Mr. Nashiri, who's now present in the  
4 classroom.

5 The following people I will be listing all have the  
6 necessary clearance to be present in the courtroom here and in  
7 the RHR. In the courtroom at the present moment is Captain  
8 Mizer, Ms. Carmon, Ms. Morgan, and I anticipate that  
9 Mr. Dolphin, Ms. Janes, Mr. Hoffmann, Mr. Roy, and our  
10 interpreter will be coming shortly.

11 The -- in the RHR, Commander Piette is present along  
12 with Ms. Hon and with Ms. Pinate.

13 MJ [COL ACOSTA]: Thank you.

14 All right. In this session, we're going to take up AE  
15 434, which is the defense motion to -- for the commission to  
16 compel the government to conduct an "all vs. all" search.

17 Do both parties consent to my considering your  
18 motions, the attachments thereto, the evidence I've received  
19 during this hearing, and your arguments, in reaching decision  
20 on this motion? Defense?

21 DC [MS. CARMON]: Yes, sir. Thank you.

22 MJ [COL ACOSTA]: Government?

23 ATC [MAJ ROSS]: Yes, Your Honor.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 MJ [COL ACOSTA]: Defense, you may proceed. Do you have  
2 anything, any evidence to present?

3 DC [MS. CARMON]: We do, Your Honor. I believe in the  
4 back, we are calling Dr. Karl Reich, K-A-R-L, R-E-I-C-H.

5 And, Your Honor, once he is finished with his  
6 testimony, I would ask, pursuant to Rule 615, for the same  
7 accommodation that he be allowed to stay and observe any other  
8 expert testimony that happens.

9 MJ [COL ACOSTA]: Absolutely.

10 DC [MS. CARMON]: Thank you.

11 MJ [COL ACOSTA]: Remain standing.

12 **KARL A. REICH, Ph.D., civilian, was called as a witness for**  
13 **the defense, was sworn, and testified as follows:**

14 ATC [MAJ ROSS]: Have a seat and please remove your mask.

15 WIT: Thank you.

16 DC [MS. CARMON]: And Your Honor, to assist Dr. Reich in  
17 our presentation today, I do have a PowerPoint presentation.  
18 The slides have not been finally cleared by the OCAs, and so  
19 for the purposes of this hearing, if we could just have the  
20 displays inside the courtroom.

21 MJ [COL ACOSTA]: Yes.

22 DC [MS. CARMON]: Thank you.

23 MJ [COL ACOSTA]: The court reporters can accommodate

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 that, I believe, and have been already informed that they need  
2 to restrict the display of the slides only to counsel and to  
3 myself.

4 DC [MS. CARMON]: Thank you. And Dr. Reich does have the  
5 ability to view it as well; is that correct?

6 MJ [COL ACOSTA]: I believe he does. But if you're asking  
7 me about some of the technological capabilities ----

8 DC [MS. CARMON]: Dr. Reich, do you see the first  
9 PowerPoint slide up?

10 WIT: I do now.

11 DC [MS. CARMON]: Okay. Great. If I may, Your Honor?

12 MJ [COL ACOSTA]: You may proceed.

13 DC [MS. CARMON]: Thank you.

14 **DIRECT EXAMINATION**

15 **Questions by the Defense Counsel [MS. CARMON]:**

16 Q. Dr. Reich, let me start off with your qualifications.  
17 I'm going to have you place them on the record in furtherance  
18 of qualifying you as an expert for this proceeding. If you  
19 would, give us your current job title.

20 A. I am the chief scientific officer and managing partner  
21 of a independent forensic DNA laboratory located in suburban  
22 Chicago.

23 Q. And what sort of testing analysis product development

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 does your lab -- your laboratory, which I'm understood to be  
2 Independent Forensics, what sort of work do you do at that  
3 laboratory?

4 A. The name of the laboratory is Independent Forensics,  
5 and we do a variety of DNA-related things. We do DNA testing,  
6 forensic DNA testing per accreditation standards. We do  
7 family relationship testing, otherwise known as paternity  
8 testing, also to an accreditation standard, a different one  
9 from forensics.

10 We also have developed a series of products which are  
11 specific for forensic DNA laboratories and we manufacture,  
12 produce, sell, and support those products to forensic  
13 laboratories basically across the world.

14 Our laboratory also takes on DNA expert witness work,  
15 which can mean case review, it can mean a report of findings,  
16 and it can result in testimony at a trial or a hearing.

17 We do not do any health-related testing or science,  
18 just forensic DNA.

19 Q. You mentioned that your laboratory is qualified. What  
20 accrediting body qualified your laboratory, specifically for  
21 forensic DNA?

22 A. So in the United States, there are two standards  
23 against which forensic laboratories are compared against.

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 There is an international standards called ISO 17025 and  
2 there's a related set of standards promulgated by the FBI, and  
3 so forensic labs in the United States are compared against  
4 both of those standards, and become accredited to both of  
5 those standards.

6 There's also a scope of work associated with those  
7 accreditations which describes the type of testing that the  
8 lab has been compared against.

9 Q. And does your lab currently hold accreditations from  
10 both of those -- or pursuant to both of those bodies?

11 A. We do. That's not the only accreditation we have, but  
12 that's the one for forensic DNA.

13 Q. Let me focus on your specific experience, your  
14 personal experience with forensics. If you could, give us a  
15 little bit about your education and any post-education,  
16 post-doctorate fellowship-type work that you have done.

17 A. Okay. I have an undergraduate degree in chemistry  
18 from Cornell. I then worked for approximately five years in  
19 two different laboratories, the Neurobiology Department at  
20 Harvard Medical School and then the Department of Biological  
21 Chemistry at UCLA Medical School.

22 I then went back to graduate school at UCLA,  
23 technically in -- in the Molecular Biology Institute, a

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 separate department at that -- at that university. In the  
2 middle of my second year, my advisor moved, this time back to  
3 Harvard Medical School but a different department, so my  
4 thesis work was completed in the Department of Microbiology  
5 and Immunology at Harvard Med, but my degree is from UCLA in  
6 molecular biology.

7 I then spent two years as a post-doctoral fellow at  
8 the Institut Pasteur in Paris. And then I went back to the  
9 United States and worked for six years for the Chief of  
10 Infectious Diseases at Stanford Hospital and was a Howard  
11 Hughes Research Fellow, which is -- which is basically a  
12 post-doctoral fellowship, and worked for him for that time.

13 Then I worked for Abbott Pharmaceutical Division for  
14 just under five years, and then worked for a couple of  
15 different biotech firms in the Chicago area. And then in the  
16 fall of 2002, with a partner, opened the laboratory where I  
17 work at now.

18 Q. And am I safe to assume that within those post-doc  
19 fellowships and some of your fieldwork that you did perform  
20 forensic DNA analysis yourself?

21 A. I have performed forensic DNA myself. When we opened  
22 the laboratory, we were very small, and there was very few  
23 hands besides mine in the laboratory. In terms of doing DNA

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 or the molecular biology that underlies all of forensic DNA,  
2 that's basically what I have done since I was a graduate  
3 student in the early '80s.

4 Q. Do you hold memberships with any professional  
5 organizations, specifically for forensic DNA professional  
6 organizations?

7 A. I do not. I hold no such. I prefer to be  
8 independent.

9 Q. And what about continuing education? Do you attend  
10 seminars and talks to further your education?

11 A. I did a tremendous amount of that except for the last  
12 two years, when there were no such things, basically. But,  
13 yes, I have attended forensic meetings for the last 17 years,  
14 both in the United States and abroad. There are two major  
15 forensic lab -- forensic meetings, pardon me, in the  
16 United States every year, or there were. I think they're  
17 about to start up again. And there's at least two  
18 international meetings which we also attended regularly.

19 Q. You have previously been qualified as an expert  
20 witness in both state and federal court; is that right?

21 A. I have.

22 Q. And could you give us an approximation of the number  
23 of times in state court that you have been qualified as an

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 expert witness?

2 A. Oh, okay. I've never divided it up before, but I'm  
3 going to guess a hundred and -- let's say 125 in state court  
4 and ten in federal court, something like that.

5 Q. And what -- in what particular areas of expertise were  
6 you qualified?

7 A. Ah. Only related to forensic DNA, so forensic DNA has  
8 at least arguably two parts. There's a part that's sometimes  
9 called biology or serology, and I have been court qualified as  
10 an expert in forensic biology. There's also forensic DNA  
11 which is really profiling, developing a genetic identity. And  
12 then there's the description of the statistics which are used  
13 to describe or support the DNA profiling work, and I've been  
14 qualified on that subject as well. Sort of depends on the  
15 case, what is at issue.

16 Q. Let me ask you briefly to describe what documents you  
17 have reviewed in preparation for your testimony in this case  
18 in this particular hearing and prospectively in the hearing to  
19 follow.

20 A. So my -- the general term for that is forensic  
21 discovery, and it's paper, and it's documents, and it's really  
22 the case file from the FBI which is a description and  
23 documentation of the work that was performed in the laboratory

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 to receive, develop, and then analyze the results that become  
2 a DNA profile.

3 I was also able to examine the standard operating  
4 procedures of the laboratory in force at the time. There  
5 were -- in that case file, there were or are the  
6 electropherograms, the allele summaries, the work notes, the  
7 worksheets, pretty typical discovery in terms of a forensic  
8 DNA case.

9 Q. For the two samples at issue here, one being the  
10 evidentiary sample and one being the reference sample, in your  
11 review of the documents, were you able to follow both samples  
12 through the forensic DNA process?

13 A. In terms of the documentation that was provided, yes.  
14 Obviously, I wasn't there, but there was documentation of the  
15 testing and analysis that was done on those two individual  
16 samples, and essentially those steps were provided for both.

17 Q. And you did, in fact, review those documents for both  
18 samples; is that right?

19 A. That's correct.

20 DC [MS. CARMON]: Your Honor, at this time, pursuant to  
21 M.C.R.E. 702, I would ask that the court accept Dr. Reich as  
22 qualified as an expert in forensic DNA, forensic biology, and  
23 the interpretation of forensic DNA statistics.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 MJ [COL ACOSTA]: Government?

2 ATC [MAJ ROSS]: Your Honor, may I approach?

3 MJ [COL ACOSTA]: You may.

4 **CROSS-EXAMINATION**

5 **Questions by the Assistant Trial Counsel [MAJ ROSS]:**

6 Q. Dr. Reich, you testified that you've been qualified as  
7 an expert how many times?

8 A. A total of 135. But I was asked to separate between  
9 state and federal court and so I'm making a guess about the  
10 ratio between the two.

11 Q. And you testified that all of those related to  
12 forensic DNA analysis?

13 A. No other topic have I ever given any testimony to.

14 Q. As an expert witness?

15 A. That's correct.

16 Q. Of those cases that you testified as an expert, how  
17 many were criminal?

18 A. Oh, I'm going to guess a hundred.

19 Q. And of those, how many did you testify on behalf of an  
20 individual charged with a crime?

21 A. Not sure I understand your question. I'm hired by the  
22 attorney of record for the case, and so I don't technically  
23 know the defendant in any case.

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. Have you ever testified on behalf of a state or  
2 federal government? Have you ever been retained by a state or  
3 federal government and testified in a criminal case in that  
4 regard?

5 A. Of course.

6 Q. How many times?

7 A. I'm going to guess half a dozen.

8 Q. Half a dozen times.

9 ATC [MAJ ROSS]: Your Honor, we would object to his being  
10 qualified as an expert in anything other than forensic DNA  
11 analysis. He's testified that he's been qualified as an  
12 expert in that discipline, and ----

13 MJ [COL ACOSTA]: I don't think that's what he said. I  
14 think he said he's also been in forensic biology and serology  
15 as well.

16 ATC [MAJ ROSS]: But not qualified as an expert in state  
17 or federal court.

18 MJ [COL ACOSTA]: So what is the limit that you seek?

19 ATC [MAJ ROSS]: That he's an expert in forensic DNA  
20 analysis. Anything outside of that, biology, serology, the  
21 other disciplines would be outside the scope of his expertise.

22 MJ [COL ACOSTA]: The defense requested forensic DNA  
23 analysis, forensic biology, and in the review and analysis of

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 forensic DNA testing; is that correct?

2 DC [MS. CARMON]: Yes, Your Honor. In the interpretation  
3 of the forensic DNA statistics, which are the population  
4 statistics. And if I was not clear, I apologize. Dr. Reich,  
5 I believe his testimony was, has been qualified as an expert  
6 in those three particular disciplines that I'm requesting  
7 today.

8 Is that right, Dr. Reich?

9 WIT: That's correct.

10 MJ [COL ACOSTA]: Government?

11 ATC [MAJ ROSS]: We have no objection.

12 MJ [COL ACOSTA]: Dr. Reich is recognized -- is so  
13 recognized as the defense requested.

14 DC [MS. CARMON]: Thank you.

15 MJ [COL ACOSTA]: You may proceed.

16 WIT: Thank you, Your Honor.

17 **DIRECT EXAMINATION CONTINUED**

18 **Questions by the Defense Counsel [MS. CARMON]:**

19 Q. Dr. Reich, are you prepared today to educate the  
20 commission and the court about why we are requesting the  
21 "all vs. all" search?

22 A. I hope so.

23 Q. Great. Then if we can get started.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 DC [MS. CARMON]: And, Your Honor, I'm going to make use  
2 of the PowerPoint beginning now.

3 MJ [COL ACOSTA]: You may.

4 Q. Dr. Reich, I'm going to have you give the commission  
5 and the parties a brief primer on forensic DNA analysis, just  
6 to provide a context for the search that we're requesting.

7 And so if we can begin here, we've mentioned the  
8 evidentiary and the reference samples. Can you give us a  
9 description of the difference of the two and where you might  
10 find either one.

11 A. Okay. So just to eliminate confusion, there's really  
12 only two types of samples that are provided to a forensic DNA  
13 laboratory for testing. There are samples which -- for which  
14 everything is known about that sample. We know where it came  
15 from, we know who it came from, we know the chain of custody,  
16 we know what type of sample it is, we know when it was taken.  
17 Everything is known about that sample. And we either call  
18 that a reference sample or a -- or a reference standard  
19 sample.

20 And that's going to be important because DNA profiles  
21 have no ----

22 MJ [COL ACOSTA]: Sir?

23 WIT: I'm sorry. Am I going too quickly?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 MJ [COL ACOSTA]: You are.

2 WIT: Excuse me.

3 MJ [COL ACOSTA]: What I want to remind you is what we  
4 have ----

5 WIT: There's an interpreter. My mistake. Excuse me.

6 MJ [COL ACOSTA]: What we have is an interpreter and a  
7 court reporter, both of whom are trying to keep up with  
8 transcription and translation.

9 WIT: Absolutely, Your Honor.

10 MJ [COL ACOSTA]: Which can be difficult so, please ----

11 WIT: Absolutely.

12 MJ [COL ACOSTA]: ---- slow down a bit. Thank you.

13 WIT: I will start again and try to do better. Thank you.

14 A. So there are two kinds of samples in the forensic  
15 laboratory, and there is the simplest sample which we call  
16 either a reference sample or a standard sample, and that is a  
17 sample for which we know everything about that sample. We  
18 know who it comes from, we know when it was collected, we know  
19 how it was collected, we know its entire history. And that's  
20 going to be a sample that we're going to be able to use when  
21 we do a comparison.

22 As it turns out, the DNA profile has no inherent  
23 information. So we always have to try and make a comparison.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 And we're going to make a comparison with a sample we know  
2 almost nothing about until we process it through the  
3 laboratory and develop a profile. And that's an evidentiary  
4 sample.

5 Q. Let me ask you just one question about the reference  
6 sample. In your review of this case, is that reference sample  
7 referred to as K19, Kilo 19?

8 A. I believe that's correct. And to some extent, it  
9 doesn't matter what name you give that sample. It's just a  
10 comparison you're going to make hopefully eventually.

11 Q. And that would be Mr. al Nashiri's cheek swab. We  
12 know it came from him, and, therefore, that's our reference  
13 sample; is that right?

14 A. That's my understanding, that it's from the defendant.

15 Q. Okay. Give us just a little bit of information about  
16 an evidentiary sample.

17 A. So an evidentiary sample is a sample that comes into  
18 the laboratory for analysis or processing, and it can be  
19 tested for the source attribution or body fluid testing, or it  
20 can go directly through the process to try and develop a  
21 profile. And we don't know too much about that sample until  
22 we start to process it through the various steps in the  
23 laboratory.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           And perhaps as an adjunct to that, the samples that  
2 come into the lab are either a stain on fabric or they're a  
3 swab. Essentially, all evidence is converted into either a  
4 swab or is a stain on fabric. We don't handle the physical  
5 item usually itself. It's converted. The biological material  
6 is collected on the swab, because we can handle a swab in the  
7 laboratory very easily. And so it's either a stain on fabric  
8 or a swab, and we don't yet know much about it until we start  
9 to process it.

10          Q. When you say swab, what you mean is -- excuse me -- if  
11 the item of interest is a firearm, for your laboratory  
12 purposes, would you use a Q-tip to swab that firearm for DNA?

13          A. Correct. And it doesn't have to be a firearm. Any  
14 object which is of interest to the investigator to try and  
15 develop a profile from, there's going to be a Q-tip,  
16 basically, that is rubbed against the surface of that item to  
17 collect the biological material, and then that becomes the  
18 item of evidence. The Q-tip, the swab now is the item that  
19 goes into the laboratory and is processed.

20          Q. And in this case, the evidentiary sample, K470, what  
21 did it come into the lab as?

22          A. My understanding is that that was a swab itself and  
23 that there wasn't any information or documentation about

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 whether -- how that swab was used. It came in as a swab, and  
2 that was the sample that was processed.

3 Q. And so swab, to your point, it came in as a Q-tip; is  
4 that right?

5 A. Q-tip, swab, exactly.

6 Q. Understood. Now, do both of these samples go through  
7 the same forensic DNA analysis steps?

8 A. Ah. There's no difference in how the lab processes  
9 either a reference standard or an evidence sample. The same  
10 set of steps, the same equipment, the same reagents, the same  
11 everything is done. They really should be processed at  
12 different times and in different places. But the actual  
13 steps, process, and analysis is identical.

14 Q. And the separation in time and space that you just  
15 mentioned, is that to avoid contamination?

16 A. It's to avoid many things, but contamination is one of  
17 the major issues in every forensic laboratory. There's no  
18 avoiding that. And in an effort to reduce that, you would  
19 like to separate samples which you know have a lot of DNA, the  
20 reference standard, from the evidence sample which may or may  
21 not have a lot of DNA.

22 And so the safety, in terms of reducing contamination  
23 and sample mix-up, would be to separate those two samples in

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 time and space as they are processed through the lab.

2 Q. I'd like to take you through the steps now of the  
3 forensic DNA analysis. And so let's start with the first step  
4 which is extraction and then move to purification. Can you  
5 explain what those steps are in as plain English as you can.

6 A. So because we are interested in getting to the DNA, we  
7 have to follow a series of steps in the laboratory to get  
8 there. And it turns out that DNA is very tightly held by the  
9 cells or the biological material that's collected. And so to  
10 force the cells to release the DNA, we use strong chemicals in  
11 harsh conditions to basically destroy the cells and release  
12 the DNA.

13 And I generally use the analogy of an egg where we are  
14 interested in the yoke, and so extraction is taking an  
15 eight-pound sledge hammer and breaking that egg. And this  
16 makes quite a mess. Shell, white, bits of the hammer have  
17 fallen off. And so we have to go through another step to  
18 remove the chemicals we add, to remove the debris we've made  
19 in the extraction, and to purify the DNA away from all of  
20 those materials.

21 And if it seems counterintuitive to make a mess and  
22 then to clean it up, we don't have a choice. That's just how  
23 you have to do it in order to recover the DNA from either the

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 reference sample or the evidence sample. It's the same.

2 You're still going to extract and then you're going to purify  
3 the DNA away from that debris material you've made.

4 Q. Tell us about the next step. What happens after  
5 purification?

6 A. So the next step is to measure or, more precisely,  
7 estimate the amount of DNA that's recovered through those  
8 first two steps. Although you have them listed as one, they  
9 are really two separate steps in the laboratory, extraction  
10 and purification.

11 And the third step is the quantification, the  
12 measurement of how much DNA is recovered after steps one and  
13 two.

14 Q. And why is quantifying, measuring the DNA that is  
15 recovered, why is that important?

16 A. It's important for a couple of reasons. One, it's a  
17 mandatory step in the process as per accreditation standards,  
18 so ----

19 Q. And who promulgated those accreditation standards?

20 A. I'm sorry?

21 Q. Who promulgated those accreditation standards?

22 A. They were promulgated by the FBI, and so they have set  
23 the rules by which the laboratory has to process samples.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 There's not -- you have choices about exactly how you're going  
2 to do it, but you do have to provide a quantification, a  
3 measurement of how much DNA you recover. It's one of the  
4 steps. You're also interested in the quantification because  
5 there are decisions you can make about how to process the  
6 sample from knowing how much DNA you recovered.

7           And so the commercial kits, which will be used in the  
8 next step, require a certain amount of DNA and you want to  
9 know how much of your DNA that you recovered you're going to  
10 use in that recipe. So for both practical reasons, what  
11 you're going to do next and to satisfy the accreditation  
12 standards, you're going to quantify, measure, estimate, how  
13 much DNA you recovered from the first two steps.

14           Q. And once you have done that, once you have measured or  
15 estimated the amount of DNA, what step do you -- what step  
16 happens next?

17           A. You're going to perform what's called amplification.  
18 You're going to use a commercial kit and you're going to  
19 follow the commercial kit's explicit recipe. And you're going  
20 to add the components in the kit and you're going to add some  
21 of the DNA that you've recovered and measured. And this is  
22 the step that is the underlying foundation for developing a  
23 profile as promulgated since the late '90s.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           So the amplification step is a required step in order  
2 to measure the genetic elements which we use in a genetic  
3 identity test or a profile.

4           Q. And can you -- you've, when working with me before,  
5 described it as sort of a cake mix that you would buy at the  
6 grocery store. Can you use that analogy here to illustrate  
7 how the kit works?

8           A. So you're referring to the amplification kit.

9           Q. Yes.

10          A. So this is a commercial kit. There's only a very  
11 small number of approved kits for performing forensic DNA in  
12 the United States. And it's very similar to going to the  
13 market and pulling off the shelf an angel food cake mix. And  
14 in that box, there are all the components you need, plus you  
15 go to your fridge and maybe you pull out an egg or you put a  
16 little bit of oil in it and you stir it 32 times with your  
17 right hand and it goes in the oven.

18           And essentially that's as complicated as it is to use  
19 one of the commercial kits to develop a profile at the  
20 amplification step. If all the components are provided to  
21 you, the lab has to do a little bit of manipulation. The DNA  
22 goes in. You're only allowed to put in this much of that and  
23 that much of this. And it goes into an instrument which is

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 designed to do this, called a thermocycler, and that's the  
2 amplification process.

3 Q. And what happens after amplification?

4 A. So the amplification reaction develops the DNA  
5 fragments which are important for the DNA profile. But we  
6 have to analyze, measure the amplification, and that's done by  
7 a specific instrument called a capillary electrophoresis  
8 instrument, which we abbreviate as CE. And this is an  
9 analysis of the amplification reaction that we just performed.  
10 And this is a piece of equipment, maybe the size of a  
11 half-size refrigerator or so, and it is, of course, like all  
12 scientific equipment, run by a computer.

13 And this instrument, the CE, measures, analyzes the  
14 amplification reaction and records those data. And those  
15 become a computer file which we can then use later in the next  
16 step, which I'm sure you'll get to, to develop a profile.

17 Q. And what is the visual representation of that profile  
18 called?

19 A. So the capillary electrophoresis instrument records  
20 the analysis as a computer file, which we really can't do  
21 anything with. We need a piece of specific software to  
22 visualize the data that the CE instrument recorded. And that  
23 visualization we call an electropherogram, or sometimes we

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 abbreviate that as an e-gram, and it gives a picture on the  
2 computer screen of the data that the CE machine collected.

3 Q. The electropherogram that is on the PowerPoint slide,  
4 I recognize that it is -- does not have anything to do with  
5 this case and it was actually made with newer software, but  
6 can you just sort of describe what we're seeing and how that's  
7 used in the analysis generically?

8 A. Yes. So -- okay. So this is a little unfortunate  
9 because this is actually -- this is part of an  
10 electropherogram. Electropherogram has more of these panels  
11 than the two we can see. The other issue is that this is a  
12 more complicated electropherogram than usual and -- but it  
13 does represent what an electropherogram can look like.

14 So there are panels. This has two. There's a blue  
15 panel and a black panel. And then within each panel, there  
16 are sections. And the data for the specific genetic elements  
17 that we test are shown sort of piece by piece by piece. And  
18 then each peak has a box underneath it, which has some  
19 information related to that peak.

20 And so in general terms, this is an electropherogram.  
21 You can see the peaks. You can see there's data of some kind  
22 associated with the peaks by the box, and you can see that  
23 there are multiple sections. So overall, this is a part of an

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 electropherogram. This is roughly what it looks like.

2 Q. And you would have reviewed the electropherograms for  
3 both the reference and the evidentiary sample in this case; is  
4 that right?

5 A. Yes. There's no other way to look at the DNA  
6 profiling information except from an electropherogram.

7 Q. Understood. I want to do just a very quick overview  
8 as well of what is a DNA profile and what information it  
9 contains. And so -- actually, let me back up real quick.

10 You mentioned two kits that were used in the making of  
11 the angel food cake in the amplification process. What you're  
12 seeing on your screen, can you tell us what those kits are and  
13 how they were used.

14 A. Sure. So there -- to develop a DNA profile in the  
15 time frame of this case, since 1997 or so until 2017, a DNA  
16 profile consisted of analyzing 13, one-three, genetic markers.  
17 And we'll talk about the genetic markers, I'm sure.

18 In order to develop that information, we talked about  
19 a commercial kit that's used, and in the late 1990s and the  
20 early 2000s, in order to get information from all 13 of those  
21 markers, we needed two angel food cake mixes, if you want to  
22 use that analogy. And the names of those are listed here.

23 There's a kit called Profiler Plus, and that's a kit

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 that tests nine of the genetic markers used for identity, plus  
2 an additional marker for sex; that is male or female.

3 The second kit, which would complete the full 13, was  
4 called COfiler. And there's an overlap between Profiler and  
5 COfiler of two markers. So Profiler Plus has nine markers for  
6 the profile, and COfiler has the additional four.

7 And if you had enough DNA, you would use both kits,  
8 both angel food mixes, and put DNA in both and run them  
9 separately. And together they would give you the 13 markers  
10 which were decided upon by the FBI in 1997, late 1997.

11 Q. And so in 2002, how many loci would represent a full  
12 profile per the FBI?

13 A. Thirteen.

14 Q. And what about today in 2021?

15 A. Well, the slide describes it. We need seven more than  
16 the original 13, or 20, as the minimum.

17 Q. And these core loci increased, obviously, in 2017.  
18 Why was that?

19 A. They expanded, I think is the term that we use, and  
20 there were two published reasons for that. One is that over  
21 the time, it became clear that the 13 markers were not all  
22 equally, we call it, discriminating. They weren't all equally  
23 powerful in developing identity.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           And so there were 13, but two of them were not very  
2 effective. So we really only had 11, I'm going to call it  
3 strong, but 11 highly discriminating markers and two which  
4 really weren't. And it has become clear that those 11 might  
5 not be sufficient for identity.

6           The other reason is that many other countries have  
7 developed their own DNA databases, and they didn't necessarily  
8 use the original 13 set aside by the FBI. They picked some of  
9 them, and then they picked others. And so to facilitate the  
10 ability to search other countries' databases, the FBI expanded  
11 the core loci from 13 to 20, and some of those are included so  
12 that other countries can search other countries' DNA  
13 databases.

14          Q. Understood. The -- when we're talking about  
15 discriminating, discriminatory loci, how discriminating one is  
16 versus the other, what is it that the profile that we're  
17 trying to do when we are doing forensic DNA analysis,  
18 comparing a reference standard to an evidentiary sample?

19          A. Well, the only thing that DNA can do is try to  
20 identify somebody. It doesn't do anything else. And so to be  
21 able to, let's call it, point the finger at one person and one  
22 person only, you need a powerful discriminatory method. And  
23 so the genetic elements that were chosen to do this were

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 designed for that purpose.

2 Q. And in 2002, what was the standard for identity?

3 A. Thirteen genetic markers set aside by the FBI.

4 Q. Let me take you to the -- some of the samples in this  
5 case in particular so that we are all using the same language.

6 Let's start with our evidentiary sample, which is K470. I  
7 have brought up two different graphics in the PowerPoint.

8 DC [MS. CARMON]: And, Your Honor, for the court, these  
9 were attached at AE 434 Attachment C.

10 MJ [COL ACOSTA]: Thank you.

11 Q. Dr. Reich, what are we looking at here?

12 A. There's a fair amount going on on this slide, so let's  
13 start with the inset that has the three lines and lots of  
14 things that are just barely visible, at least to my eyesight.

15 So that's a full electropherogram of the evidentiary  
16 sample that was extracted, purified, amplified, analyzed on  
17 the capillary electrophoresis instrument. And then those,  
18 that data file, was then analyzed with software to produce an  
19 electropherogram. And so that's the electropherogram from the  
20 sample. There's a lot going on in there, and it's rather  
21 small to see, but that's what the electropherogram is.

22 And then on the bottom is what we would call an allele  
23 table or an allele summary table, which summarizes some of the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 data that's in the electropherogram in the middle of the  
2 slide. And that allele table has the name of the sample to  
3 the left and then it lists the specific genetic elements that  
4 Profiler Plus tests. That's those strange names, D3, vWA,  
5 FGA, et cetera.

6 And then in the box beneath that, the name of the  
7 genetic marker, are additional numbers which we will -- those  
8 are the allele calls. Those are the values at that particular  
9 genetic element.

10 So there's a couple of different ways of explaining  
11 this, but this is a partial profile by definition, because we  
12 don't have a full 13. And it's further a partial profile  
13 because the last marker, all the way to the right, D7S820, is  
14 labeled inconclusive. So that's a genetic element in the  
15 electropherogram for which the FBI was unsure of the results  
16 and didn't record any alleles in their table.

17 Q. I want you to look quickly at the bottom at D5 and  
18 D13. D5, I see a 13, 15, and at D13, I see an 11, 11. Can  
19 you give us a very brief biology lesson about what we are  
20 looking at there and why those are different?

21 A. Okay. So what you're really referring to is whether  
22 you have two different numbers at a locus or whether you have  
23 two numbers the same. So in order to explain why there are

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 two values for each one of the genetic markers, we have to go  
2 a little bit back to basically high school biology, which we  
3 can recall.

4 So the way people are made, everybody knows, is from  
5 one egg and one sperm. But what's important for the  
6 discussion today are the different -- thank you -- chromosomes  
7 that are in the egg and the sperm.

8 So this turns out the way people are made is in every  
9 human egg there is one copy of chromosome 1, one copy of  
10 chromosome 2, dot, dot, dot, to chromosome 22. We have 22  
11 autosomal chromosomes. And then there's another kind of  
12 chromosome we have, which is called the sex chromosomes, X or  
13 Y. But the egg always has just one X chromosome and one copy  
14 each of chromosomes 1 through 22.

15 The sperm is similar in that it also has one copy each  
16 of chromosomes 1 through 22, and either an X or a Y sex  
17 chromosome. Not both, just one.

18 So when a sperm merges with the egg for our purposes  
19 here, you now have two copies of chromosome 1, two copies of  
20 chromosome 2, dot, dot, dot, two copies of chromosome 22.

21 So the missing piece of information you need to know  
22 is that these genetic elements are on those chromosomes 1  
23 through 22. They're not on every chromosome, but they're on

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 those types of chromosomes. So you end up with two of those,  
2 one from mom, one from dad. So you're getting a result from  
3 each of those two chromosomes, hence, two numbers in each one  
4 of the boxes.

5 Now, you can inherit a different allele from your  
6 parents, mom and dad, in which case you're going to get two  
7 different numbers. The examples would be D3, FGA, D8, D21,  
8 D18, and D5. But if you inherit the same allele from your  
9 parents, you're only going to see one result because those two  
10 are the same value.

11 So for D13, there's an 11 from both parents.  
12 Technically, on the electropherogram you only see one peak,  
13 the 11. The analyst here has made the so-called heterozygote  
14 assumption and written 11, 11, but, in fact, the data only  
15 show one peak. The same can be said for vWA, where there is a  
16 17, 17 where both parents provided the same allele but there  
17 will only be one peak on the electropherogram.

18 And it might be of interest to the audience that this  
19 is actually how paternity testing is performed using this same  
20 approach and comparing the child's profile to the alleged  
21 father.

22 Q. Looking at D13, what is the scientific term for when  
23 mom and dad contribute the same allele?

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. So it's called a homozygous result, the same result  
2 from both parents, a single allele, 11, at that position.

3 Q. And for D5, when mom and dad contribute different  
4 alleles, what is the scientific term for that?

5 A. It's a heterozygous result, meaning two different  
6 results in -- that are analyzed -- that are observed. Pardon  
7 me.

8 Q. Dr. Reich, let me take you to the reference sample.

9 DC [MS. CARMON]: And, Your Honor, again, that's AE 434  
10 Attachment D.

11 Q. Dr. Reich, what are we looking at here in reference to  
12 K19, which is the reference sample?

13 A. That is again an allele table or an allele summary,  
14 and here it's actually providing information that we don't  
15 have to compare with the evidentiary sample. And I'm  
16 referring here to the COfiler results.

17 So from the K470 sample, we have results at  
18 Profiler Plus, or eight of those loci to be precise. But  
19 here, the full profile of the defendant is identified. The  
20 results from both kits are shown.

21 Q. And the COfiler and Profiler Plus -- I'm looking at  
22 both. I do not see any inconclusives. I do not see a partial  
23 profile; is that correct?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1           A. That's correct. The -- how do I put this? The  
2 reference profile is the simplest, most robust sample a  
3 forensic DNA lab is likely to receive. And if you as a  
4 laboratory cannot develop a full profile from a reference  
5 standard, you need to find something else to do.

6           Q. And so with this full profile, in your review of the  
7 discovery provided to you, was this profile, this reference  
8 profile, compared to the evidentiary profile from the previous  
9 slide?

10          A. Yes. That's the only -- it's the only thing you can  
11 do with a DNA profile, is compare it to a known -- or to  
12 another sample. It doesn't have to be a known. But the  
13 profile itself doesn't have any intrinsic information. It's  
14 just a series of numbers in the order of the kit that was  
15 tested.

16                 And so if you want to learn about that sample, if  
17 you're looking for identity and recall that's the only thing  
18 DNA does, then you must have a comparator, which in this case  
19 is a reference sample, and so you would compare the results  
20 shown on this slide to the previous one and try to deduce what  
21 information you can.

22          Q. I want to move you to the ultimate opinion given here  
23 by the FBI analyst and the expression of that comparison that

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 we just discussed. As you see in the slide here, it says that  
2 K19 is potentially the major contributor of the DNA, so I want  
3 to stop there.

4 What does "major contributor" tell you? What  
5 information does that give you?

6 A. There's a little bit of information from the term  
7 "major." We can deduce that there is a mixed DNA profile;  
8 that is, that there is DNA profile data from more than one  
9 person, more than one -- more than one contributor on the  
10 sample that was tested -- or provided and then processed  
11 through the steps we described earlier to generate a profile.

12 There's no other way you would use the term "major"  
13 except in a mixture, so we can immediately deduce there's a  
14 mixed profile.

15 Q. And that mixture is in the evidentiary profile; is  
16 that correct?

17 A. That's correct.

18 Q. Okay.

19 A. And to be honest, when you showed the electropherogram  
20 of the K470 in that other slide where it was shrunk, it was  
21 very obvious right away that it's a mixture, but the -- thank  
22 you.

23 So we might get into how you can figure that out, but

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 to those of us who look at this all the -- all the time, we  
2 can see multiple peaks at each locus, and that can only come  
3 from having a mixture, and that paragraph reinforces that or  
4 describes that, so ----

5 Q. And going back to the expression, the next sentence  
6 begins that the probability of selecting an unrelated  
7 individual at random. What is that -- what is that  
8 probability statistic that is about to -- that's about to  
9 happen here?

10 A. Okay. So by accreditation standard, if a laboratory  
11 is going to make an association, is going to report a  
12 comparison between two DNA profiles, they are obligated to  
13 provide a statistic which is designed to inform as to the  
14 strength of that association. How good is the comparison?

15 There are half a dozen, maybe, different approved  
16 statistical calculations that could be performed to inform as  
17 to the strength of the association. But typically, a random  
18 man not excluded, RMNE, statistic is calculated, and that  
19 results -- that comes directly, pardon me, from the DNA  
20 profile itself.

21 And so that's what this paragraph starts to describe,  
22 and then it's going to go on and tell you what that number is  
23 calculated as.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. Okay. And is that number calculated, the strength of  
2 the association, as to different population groups?

3 A. It is. Again, that's according to the accreditation  
4 standards. So there is a underlying data table that is used  
5 to calculate the statistic, and that's called an allele  
6 frequency table, and that allele frequency table has been  
7 developed for different populations.

8 And so you would use those different frequency tables  
9 to perform the calculation, and that's why the numbers vary,  
10 at least to some extent, between the different populations  
11 listed because there's a different allele frequency table  
12 that's used to run the math that comes up with the statistic.

13 Q. And have you reviewed the statistics here in this  
14 case, the population statistics used to express the strength  
15 of the association?

16 A. I have. I've read this paragraph.

17 Q. Okay. And for the commission, is there anything  
18 incorrect? Meaning is the random match probability an invalid  
19 expression of strength?

20 A. Not at all. It's one of the approved, accepted, used  
21 methods to try and provide a background, a -- information  
22 about the profile.

23 Q. And so the fact that it was used here does not

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 invalidate the expression of strength; is that correct?

2 A. No, it's the reverse. The laboratory must provide  
3 this number, and it has to give something so that when the  
4 comparison is made, someone else who reads this, has some idea  
5 of how strong the association is.

6 Q. Now, you are aware, obviously, that we are asking that  
7 the court order a search for another type of strength  
8 expression, being the "all vs. all" search; is that correct?

9 A. That's correct. I think I would put it slightly  
10 differently. I think we're trying to come up with a better  
11 way of understanding the statistic that was provided. But,  
12 yes, that's one of the difficulties, is here's a number, what  
13 does it mean? How do I interpret it? How does this fit into  
14 everything else I know?

15 Q. And before we begin the nuance of our request, I want  
16 to get your opinion on the uniqueness of DNA, meaning the  
17 discriminatory power of a DNA profile that you and I look  
18 different on an electropherogram.

19 The search that we are asking for, does it undermine  
20 that foundation?

21 A. Not in any way, shape, or form. So the -- the DNA  
22 profile, there -- it's hard to even come up with an analogy,  
23 but the one I use is of a phone number. It's a series of

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 numbers in order and it doesn't tell you anything else.

2           And so if you have a full phone number, country code,  
3 area code, block code, street code, extension, one phone on  
4 the planet will ring. That's the argument. And for phone  
5 numbers, it works. And for profiles, that's the way it's  
6 supposed to work if the number is large enough, if the number  
7 of alleles test -- pardon me, number of loci tested is large  
8 enough and if you have data from all of those markers.

9           So the statistic is just a number. We don't know how  
10 to interpret that number. And so there's a couple of  
11 different ways of trying to examine how the profile in this  
12 case, which is eight markers, fits into identity, since we  
13 know the current standard is 20, here we have eight. We have  
14 a big number calculated in that paragraph. What does it mean?

15           And so what the -- another way of turning that coin  
16 over is to ask a different question of the database: How many  
17 profiles at eight can we come up with where there's another  
18 similar profile? So how rare is an eight-locus profile? And  
19 that's sort of a comparator to the actual experimental results  
20 in this case.

21           Q. Tell us how the "all vs. all" search -- give us just a  
22 brief history here how it started in Arizona and what was  
23 discovered there.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           A. So this is a copy of an abstract that was submitted to  
2 a forensic meeting, a yearly forensic meeting. And basically,  
3 there was a DNA analyst in Arizona who was bored. We just  
4 need to describe it. And so she was the CODIS or the DNA  
5 database person for Arizona, and she was bored one day and was  
6 working with the software and asked the software to run a  
7 search that she realized that the software could do.

8           And she came up with two profiles which were the same  
9 at nine markers.

10          Q. Let me interject just very quickly. The search that  
11 she runs, she's asking the database to search against itself;  
12 is that right?

13          A. Correct. She's asking the database to look at every  
14 DNA profile that's in there and compare that profile to every  
15 other DNA profile that's in there, and do it both ways.

16          Q. And this is the Arizona state database, correct?

17          A. Correct. It was the -- this was a while ago. There  
18 were mostly nine marker profiles in there. There were, I  
19 think, 65-odd -thousand DNA profiles in the database at the  
20 time, and she ran this "all against all" search, and, to her  
21 surprise, came up with two profiles which were the same at  
22 nine, but from obviously two different individuals who were  
23 not related, did not have the same race, and didn't have the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 same date of birth. And according to the -- to the statistic,  
2 that nine-DNA profile was -- that number would have been  
3 thousands -- a hundred thousand times bigger than the database  
4 it was searched in.

5 So how do you understand the fact that in a 65,000 DNA  
6 database you can identify two profiles where the probability  
7 is six or seven orders of magnitude greater than the size of  
8 the database? And so this is the abstract she published about  
9 that observation.

10 Q. And she confirmed that these were, in fact, two  
11 different individuals who shared nine loci in their DNA  
12 profile; is that right?

13 A. Correct. It's important to understand that these are  
14 not identical full profiles. They're only the same at nine.

15 Q. Now, Dr. Reich, have you been involved in "all vs.  
16 all" searches? And particularly, have you testified in  
17 support of a judge granting such a search? And have you been  
18 involved in cases where such searches were done?

19 A. That's a multiple question, but the answer is yes, I  
20 have. And involved doesn't mean that I ran the searches  
21 myself. I don't have -- no commercial lab has access to state  
22 or federal or national DNA database. But I was involved in  
23 suggesting that this would be a good way of explaining what a

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 nine-marker profile is and its strength, and that was my  
2 suggestion in that particular case.

3 Q. Were you involved or consulted in People v. Anthony  
4 Kemp, which was, I believe, a 2016 case in Illinois?

5 A. I think so. So this idea of running "all against all"  
6 to try and determine how many similar profiles there might be  
7 at eight markers, nine markers, ten, 11, even 12, originates  
8 from an earlier case, Illinois v. Luna, where I was hired to  
9 consult, and other cases have used that approach since. And I  
10 don't recall which one of those explicitly hired me versus  
11 just using the filings from the original case, but, yes.

12 Q. On the screen, you'll see the answer from the Illinois  
13 State Police, their laboratory, their answer to the judge's  
14 order for their "all vs. all" search.

15 Can you take us through the data that you see, as what  
16 we could expect to receive from the FBI were such a search to  
17 be ordered?

18 A. Ah, I see. Okay. So this is a summary from the  
19 Illinois State Police in response to the court order to run an  
20 "all against all" search. And at the time the state database,  
21 the Illinois state database, had about 550,000 DNA profiles.

22 So the results back from the Illinois State Police  
23 demonstrate almost 80,000 pairs of DNA profiles with eight

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 loci the same; maybe 4,000 pairs of profiles which have nine  
2 markers the same; maybe 370 of profiles that have ten markers  
3 the same; fewer now, 44, maybe 40 which have 11 markers the  
4 same; and even seven at 12 loci the same.

5 We have to be a little careful here because in the  
6 intervening time between when the first search was done and  
7 this one in 2016, the commercial kits used to develop profiles  
8 were different and additional markers were included, so that  
9 15 markers were now regularly included in the database.

10 So you can see here there's some that seem to have 14,  
11 15, or 16 the same. We've only talked about 13. Well, that's  
12 because they've been expanded in the meantime. And we know  
13 that some of these are the same person, and we know some of  
14 these are potentially relatives of the other person, but only  
15 a few of them. So certainly not 80,000 of them are duplicates  
16 or relatives.

17 And, in fact, the Illinois State Police screened the  
18 results and, to the best of their ability, removed duplicates  
19 and removed errors in their final tally of the results. So  
20 they may have missed a few, because there's a lot here, but a  
21 concerted effort was made by ISP -- pardon me, the Illinois  
22 State Police, to repair their database.

23 And so these numbers may not be precise, but they do

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 give a perspective on how easy it is to find two individuals  
2 who have partial profiles the same.

3 Q. And is this an expected result? Is this an unexpected  
4 result?

5 A. It's an obligatory result from the way DNA profiling  
6 is performed and from the fact that people are very similar.

7 Q. And when you say people are very similar, how similar  
8 are we? What is the percentage?

9 A. Well, maybe we could put it differently. We're only  
10 about 1 percent different from, like, chimpanzees, who give a  
11 very good profile, I might add; and we're less than 1 percent  
12 different between everybody everywhere.

13 Q. And so we are talking about a very small amount of  
14 data that makes me unique from you and from someone else; is  
15 that right?

16 A. That is correct. So -- and that's a -- it's not an  
17 easy concept because we look different, we sound different, we  
18 have different hairs, heights, colors. But genetically, we're  
19 very similar and this is an example that has to come from that  
20 diversity or lack thereof in our genetics.

21 Q. Now, Illinois is not the only state that has performed  
22 these "all v. all" searches; is that right?

23 A. That's correct. So the original observation, that

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 abstract that was submitted to the forensic meeting, was  
2 picked up, observed by others, and there were searches, I  
3 believe, done in Maryland as well.

4           And so this is a simple graph I did many years ago and  
5 have not updated, but it illustrates that as the database gets  
6 bigger, you are likely to have more of these kinds of similar  
7 profiles, which is, again, an expected result and the other  
8 side of the coin of doing DNA profiling and putting them into  
9 databases.

10          Q. And let me just ask for your opinion here. As -- why  
11 is this needed or how does this help place into context this  
12 ultimate conclusion that is now on your screen with the  
13 expression of the association or the strength of the  
14 association?

15          A. Well, I'm not the right person necessarily because I  
16 work in this field and I do these tests all the time, and so  
17 I'm familiar with the statistics and what they might be  
18 interpreted as, but most people are not.

19               And so they see a number like this -- and it's a big  
20 number. It has lots of zeroes. How do you interpret it? Is  
21 it definitive? Does it tell you any more than that?

22               And so my suggestion in the original case to try and  
23 provide context or a background to understanding these kinds

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 of numbers was to ask: You have a partial profile. How many  
2 partial profiles are in the database which might identify  
3 somebody else if that's all of the information you have?

4 And so I'm -- that was why I suggested it, and I do  
5 think it has been used for that in the cases -- there were  
6 other cases besides the ones that you showed today for that  
7 purpose. That's its only purpose. There's no challenge to  
8 the profile. There's no argument that what was done  
9 statistically is incorrect.

10 But no one knows how to interpret that number, and so  
11 I'm trying to find a way to give people a way to interpret  
12 this number without getting lost in zeroes in the fractions of  
13 the population which we tested.

14 Q. And so there is no challenge to the uniqueness of DNA  
15 profiles; is that correct? Or this search does not challenge  
16 that DNA profiles are unique amongst individuals?

17 A. Okay. The search simply -- certainly does not. The  
18 challenge to a DNA profile is do you have sufficient data for  
19 identity? That's a different question. But in terms of  
20 running the "all against all," it is the other side of the --  
21 of the approach. That's all. It doesn't -- doesn't negate  
22 the other at all. It's the other side of that coin. That's  
23 all it is.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And so the "all v. all" data, were we to find  
2 associations at eight, nine, and ten loci, what would that  
3 tell you about our result here?

4 A. Well, first of all, you will. There's no "would" at  
5 all. The issue is roughly how many, and we're not really  
6 concerned with an exact number, just roughly.

7 So from the most recent one in Illinois, you have  
8 550,000 or so profiles, approximately 80,000 pairs. So that's  
9 1 in 7 or 8, something like that, take your pick. And so  
10 that's not very rare.

11 So we don't really know what the better number would  
12 be if we had a database of sufficient size, and so let's say  
13 it's 1 in 6-1/2. It won't change a lot, but it will get  
14 better. So now everyone would know how good are eight loci at  
15 identity. That's what we're trying to demonstrate.

16 And you could do the experiment, how many there are at  
17 13, how many are there at 19, how many are there at all 20.  
18 If we understand DNA profiling the way we think we do, we  
19 shouldn't get any at 18 or 19 or 20. That would be something  
20 that would be worth knowing. That's an experimental  
21 verification of the power of the method. Never mind what you  
22 calculate, what do you actually see?

23 Q. And so if we were not finding associations at 18, 19,

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 or 20, what does that tell you about a profile of 18, 19, or  
2 20 loci?

3 A. It would give you much more confidence that that is  
4 either close or sufficient for identity. Because by relying  
5 just on the math, which nobody really -- the math they  
6 understand, but how to interpret the final number, few  
7 understand how to interpret and nobody knows how big that  
8 number has to be.

9 It would give you a lot more confidence in being able  
10 to say I have a full profile. No one else's phone on the  
11 planet can ring, that's that person, which, as I discussed  
12 earlier, is the only thing DNA can do.

13 Q. I want to direct your attention -- and you've spoken  
14 about these population statistics, so I won't belabor the  
15 point. But I want to draw your attention to the slide here  
16 which is a letter from the FBI about their CODIS searching of  
17 K470, which is the evidentiary sample, and K19, which is the  
18 reference sample. You have seen this letter before; is that  
19 correct?

20 A. Yes, you've shown me this letter.

21 Q. And what does -- why isn't this sufficient? Why isn't  
22 this notation from the FBI that they've run it in CODIS and  
23 they don't find any other matches, why isn't that sufficient?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Why don't we need the "all v. all" search?

2 A. Well, I'm sure this is correct. I don't think that's  
3 what's at issue here, but this isn't the right database to run  
4 this in. You -- if you want to show what this letter  
5 purports, you need to run that partial eight-marker profile  
6 against everybody on the planet, which you don't have. So  
7 what can we do instead?

8 You also don't have a database that is, frankly,  
9 relevant to the defendant's origins. So you're not really  
10 running this in the correct database to show uniqueness. And  
11 there's no way that an eight-locus match is sufficient for  
12 identity. You can't use that for a paternity test. It's just  
13 absurd.

14 So the current standard is 20. The calculated  
15 statistic of that profile generally has between 27 and 30  
16 zeroes. You are not in the galactic world with this number.  
17 It's just not there.

18 And so it sounds big; it isn't. And we have to find a  
19 way of providing context for that result. And that's why I  
20 thought the "all v. all" was a useful approach, and at least  
21 in Illinois, the courts have agreed.

22 Q. Let me ask you about an article. You were familiar  
23 with the forensic researcher and expert Bruce Budowle; is that

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 correct?

2 A. Yes. His name is Dr. Budowle.

3 Q. Dr. Budowle. And you are familiar with him how?

4 A. Well, he worked at the FBI for many, many years. He  
5 runs a laboratory in Texas. He's published an enormous number  
6 of papers. He's at every forensic meeting. You -- everyone  
7 knows who he is.

8 Q. Are you familiar with Dr. Budowle's technical note  
9 from 2008 regarding the "all v. all" searches and these  
10 matches being made in the heterogenous offender database?

11 A. Yes. When these "all against all" searches started  
12 being performed and the information from them was released and  
13 known, there was -- there were arguments about whether or not  
14 those searches negated the method that was being used, whether  
15 it was changing the -- whether it was a -- demonstrating fault  
16 in some of the underlying hypotheses that are used to do the  
17 calculations. And it doesn't do any of those. It never did.  
18 Even though there were people who said it did, but it doesn't.

19 And so I believe he wrote a short note sort of  
20 basically confirming that this is what you would expect if you  
21 ran an "all against all." So -- and he's correct. This is  
22 what you would expect.

23 Q. And so do you agree with Dr. Budowle that the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 "all v. all" search does not invalidate the random match  
2 probability expression?

3 A. It doesn't. I -- he goes into some detail about one  
4 of the underlying assumptions about independence of these  
5 markers. There's a theoretical approach by two scientists,  
6 Hardy and Weinberg, about how you can do this, and there was  
7 discussion about whether the "all against all" negated that.  
8 It doesn't. It's irrelevant. It has nothing to do with that.

9 And so to assume that the "all against all" is going  
10 to somehow change that is false. It's not going to alter that  
11 at all. It's going to give a different view of how to look at  
12 partial profiles. That's what it does.

13 Q. Now, you were familiar with the Illinois state  
14 laboratory through your work and your consultation; is that  
15 correct?

16 A. I've reviewed many cases from the Illinois State  
17 Police laboratory system.

18 Q. And how many times has the Illinois State Police  
19 laboratory been ordered to perform an "all v. all" search ----

20 A. Oh ----

21 Q. ---- to the best of your memory?

22 A. Four -- four or five times. I don't remember.

23 Something like that.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And do you know if the Illinois state laboratory  
2 maintains CODIS access, meaning they are allowed to access the  
3 FBI's database?

4 A. Of course.

5 Q. And to your knowledge, after being ordered to perform  
6 these searches of their own database, did they ----

7 A. Oh ----

8 Q. ---- lose their access?

9 A. To my knowledge, and I was involved in perhaps not all  
10 of the searches, but most of them, despite the Illinois State  
11 Police's protestations and threats, there was no outcome from  
12 running these searches. There was no warning letter provided.  
13 They never lost access to the database. Their accreditations  
14 were never pulled. There was no outcome whatsoever, except  
15 the results of the search that were provided each time.

16 Q. Does this search change anything about the database?  
17 Are profiles altered in any way?

18 A. Nothing is changed in the database. So there's no  
19 upload. There's no new profile that's entered. There's no  
20 profile that's removed. None of the data that's in the  
21 database is changed, altered in any way, shape, or form. It's  
22 just doing a comparison on a computer.

23 Q. And, Dr. Reich, is it your opinion that in this case,

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 given that there is an eight-locus partial profile at issue,  
2 that the results of an "all v. all" search would be helpful to  
3 the commission, to the jury members in understanding the  
4 strength of that association?

5 A. That would be my opinion professionally. That's my  
6 experience professionally maybe as well. That's the only  
7 reason to do this.

8 There's a tremendous amount of information in the  
9 database, which can be taken from it without altering it,  
10 changing it in any way, and this is one of the pieces of  
11 information that could be derived from doing this kind of  
12 search.

13 My understanding is that there is an opportunity to  
14 use the database for research purposes. I believe that's  
15 written in somewhere. And that's basically what this is. I  
16 think it does more than just do academic research, but it is  
17 an examination of profiles and how to interpret them to those  
18 people who need to, which is the members of a jury or a court.

19 Q. And the results from this particular search, would  
20 that help the members understand the rarity of a -- an  
21 eight-locus profile?

22 A. Or how likely it is to find another one, if you want  
23 to put it that way. I think that's what it should do, and

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 that's why I suggested it in the first case. I believe it  
2 would.

3 DC [MS. CARMON]: Court's brief indulgence, just one  
4 moment?

5 MJ [COL ACOSTA]: You may.

6 DC [MS. CARMON]: Thank you.

7 [Pause.]

8 DC [MS. CARMON]: Thank you, Your Honor. I have nothing  
9 further. I'll pass the witness and just get disconnected  
10 here.

11 MJ [COL ACOSTA]: Okay. Counsel? Government --

12 Look at me. Nope. Stay where you are.

13 All right. Sir, we're going to take a brief recess in  
14 just a minute to allow the -- for the government -- before  
15 they start talking to you. During this recess, you're still  
16 on the stand. You're still under oath. You're not to talk to  
17 anybody including the -- the defense counsel during the  
18 recess.

19 WIT: Of course, Your Honor.

20 MJ [COL ACOSTA]: Do you understand that?

21 WIT: I do.

22 MJ [COL ACOSTA]: All right. Go ahead and step down.

23 WIT: Thank you, Your Honor.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 [The witness was warned, temporarily excused, and withdrew  
2 from the courtroom.]

3 ATC [LCDR SCHREIBER]: Doctor, your mask.

4 WIT: Oh, thank you. I was looking for it in my pocket.

5 MJ [COL ACOSTA]: All right. Counsel, we're in recess  
6 until 1350. The commission is in recess.

7 [The R.M.C. 803 session recessed at 1333, 07 December 2021.]

8 [The R.M.C. 803 session was called to order at 1353,  
9 07 December 2021.]

10 MJ [COL ACOSTA]: The commission is called to order. All  
11 parties present when the commission last recessed are again  
12 present, correct?

13 ATC [MAJ ROSS]: Yes, Your Honor.

14 MJ [COL ACOSTA]: Defense?

15 LDC [MR. NATALE]: Yes, Your Honor.

16 MJ [COL ACOSTA]: Recall the witness please, thank you.

17 DC [MS. CARMON]: Yes, Your Honor. We would recall Dr.

18 ----

19 MJ [COL ACOSTA]: No, I just did it, so that should be  
20 sufficient, Counsel. But we'll see if they ----

21 DC [MS. CARMON]: I mean, we'll see, one, two ----

22 MJ [COL ACOSTA]: Yeah. Please return again and take your  
23 seat.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 [The witness, Karl A. Reich, Ph.D., resumed the witness  
2 stand.]

3 MJ [COL ACOSTA]: Just remind you that you remain under  
4 oath.

5 WIT: Thank you, Your Honor.

6 MJ [COL ACOSTA]: Government counsel, you may proceed.

7 ATC [MAJ ROSS]: May it please the court.

8 **CROSS-EXAMINATION**

9 **Questions by the Assistant Trial Counsel [MAJ ROSS]:**

10 Q. Dr. Reich, in a standard DNA comparison, it starts  
11 with developing a DNA profile, correct?

12 A. Yes, certainly.

13 Q. And then the forensic scientist uploads that profile  
14 and compares it against the database, correct?

15 A. No. So that's one option. There's -- you -- if  
16 you're searching the database, then that's how you would do  
17 it. But a general comparison is with a standard and an  
18 evidentiary sample, and that's done at the bench, at their --  
19 at their desk. You don't necessarily upload or search the  
20 database with every profile.

21 Q. That would be one comparison against another sample,  
22 correct?

23 A. It would be a one-to-one comparison, correct.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And if you run it against a database, it depends upon  
2 the size of the database, right?

3 A. Well, what the -- no. So the size of the database is  
4 irrelevant. It's just a question of how many searches you  
5 want to do and if you are trying to look for an investigatory  
6 lead. So a search in the database is not an identity; it is  
7 just an investigatory lead.

8 And so you can certainly use a profile to do that.  
9 But the comparison is always done one to one between an  
10 evidentiary profile and a reference.

11 Q. One to one, right?

12 A. One to one.

13 Q. That's not what we have in an "all v. all" search,  
14 correct?

15 A. Ah, that's a search. But you asked for a comparison,  
16 and that's different.

17 Q. An "all v. all" comparison.

18 A. No, it's an "all v. all" search.

19 Q. The comparison that is traditionally used in DNA  
20 analysis is one to one, a one-to-one comparison?

21 A. That's correct.

22 Q. And an "all v. all" comparison is not the same thing,  
23 right?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. It is not -- it is the same thing, but done on a much  
2 larger scale, and it's done within the database itself. So  
3 you're not using a reference profile to compare; you're using  
4 the database itself.

5 Q. And ----

6 MJ [COL ACOSTA]: For the record, we just got informed  
7 that they're having trouble picking you up, Counsel.

8 ATC [MAJ ROSS]: Yes, sir.

9 MJ [COL ACOSTA]: So just make sure you speak into the  
10 microphone.

11 ATC [MAJ ROSS]: Yes, Your Honor.

12 MJ [COL ACOSTA]: Thank you.

13 Q. In the Arizona study, that was a comparison of the  
14 Arizona database, right?

15 A. Within the database.

16 Q. And that database was approximately 65,000 samples,  
17 right?

18 A. That's what I recall.

19 Q. So you -- in that situation, they compared those  
20 65,000 against the rest, the remaining 65,000, right? It was  
21 a comparison against itself.

22 A. That's better. Thank you.

23 Q. And when you compare a database against itself, the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 number of comparisons increase exponentially, right?

2 A. It gets very large, correct. You're doing a lot of  
3 searches.

4 Q. And there's a math formula to determine the number of  
5 comparisons involved in an "all v. all" search, correct?

6 A. Absolutely.

7 Q. And that math formula is N times N minus 1, divided by  
8 2, right?

9 A. It -- you can calculate how many searches you're doing  
10 using the math, no problem.

11 Q. And again, in Arizona, they had approximately 65,000  
12 in that database?

13 A. That's correct.

14 Q. So that came out, using that formula, to about  
15 2.14 billion comparisons, correct?

16 A. That's a lot of searches when you do that. That is  
17 absolutely correct.

18 Q. Was it a lot or was it 2.14 billion?

19 A. I don't think the exact number is what's significant,  
20 but if you did your multiplication correct, I'd believe your  
21 number.

22 Q. And in Arizona, they weren't looking for a fixed set  
23 of nine loci, were they?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. That's absolutely correct.

2 Q. And ----

3 A. Any nine is what they were looking for.

4 Q. And in a full profile at the time, that was 13 loci,  
5 correct?

6 A. A full profile was defined as 13 loci when she ran  
7 that search. That's right.

8 Q. So when they were looking for any nine, that could  
9 have been 1 through 9? That could have been -- correct?

10 A. Absolutely.

11 Q. The first nine?

12 A. Could have been the last nine, the middle nine, 1, 3,  
13 7, and 9. Absolutely. Any combination would, if it was done  
14 properly, identify similar profiles at nine, but not at 13. I  
15 think I mentioned that earlier.

16 Q. So when you don't search for fixed loci, those numbers  
17 increase exponentially as well, right? You increase the  
18 number of comparisons?

19 A. That is correct.

20 Q. And in Arizona, you understand that the total number  
21 of comparisons involved in the Arizona study was 1.5 trillion  
22 comparisons; is that correct?

23 A. I don't know the number, but I'm sure you're correct.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. Now, you're basing your opinion on that study, right,  
2 in part on that study?

3 A. My opinion? I don't think I've offered an opinion on  
4 that ----

5 Q. You have recommended to this commission to order an  
6 "all v. all" search, have you not?

7 A. That's a recommendation. If -- is -- is it my opinion  
8 that I think that's helpful? Yes. But it's not an opinion on  
9 a profile. That's what I'm more used to, perhaps.

10 Q. Your recommendation was based, in part, on the Arizona  
11 study, right?

12 A. That is correct.

13 Q. You just testified to that, correct?

14 A. That's correct. And on the work that was done in the  
15 Illinois state databases.

16 Q. You don't know the exact number of comparisons that  
17 were done in Arizona?

18 A. I do not. It's not relevant to knowing whether the  
19 result is informative.

20 Q. Random match probability, can you define that term,  
21 please.

22 A. It's how often, on average, you would have to do a  
23 search to find something similar.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And you testified that you often get random match  
2 probability in the billions and trillions, correct?

3 A. Yes. That's actually a small number for a random  
4 match probability. But if you have a series of loci, you can  
5 calculate that number.

6 Q. Now, again, the searches in Arizona were 1.5 trillion  
7 comparisons, correct?

8 A. Yes.

9 Q. And you often have random match probability within  
10 that range of figures, in the trillions, correct?

11 A. Yes, you do. We have one in, actually in this case.

12 Q. And in Arizona, you had many pairs that matched in  
13 addition to the one nine-loci match, right?

14 A. I actually don't recall how many there were. I know  
15 she reported the one, so I'm familiar with the one that was  
16 reported in the abstract. I do know the numbers from the  
17 Illinois searches, but I don't recall ever getting a full  
18 description of the Arizona search.

19 Q. One nine-loci match in Arizona. That's the one you  
20 recall, right?

21 A. That's the one that she published in the abstract.

22 Q. Out of 1.5 trillion comparisons?

23 A. Out of 65,000 database entries.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. That's not the question I asked. Out of 1.5 trillion  
2 comparisons, correct?

3 A. But those are two linked numbers. If you calculate  
4 the comparisons, you do it from the number of entries in the  
5 database. So you're saying the same thing in two different  
6 ways.

7 Q. Okay. Now, in Arizona, that was based in part on an  
8 offender database, right?

9 A. That's correct.

10 Q. So if you're convicted of a crime, you have to submit  
11 a DNA sample, right?

12 A. I believe there are a number of legal statutes which  
13 define the -- who goes into the database, but overall, that's  
14 correct.

15 Q. That's one of the ways you get into the database is  
16 conducting a crime, correct?

17 A. Depending on the crime, yes. There's also arrestees  
18 that go into the database, depending on the state statute, but  
19 certainly.

20 Q. So if you're convicted of a crime and get released and  
21 get convicted again, you could give a second sample, right?

22 A. I haven't personally had that happen, but I believe  
23 that does.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. I'm glad to know you haven't personally been convicted  
2 of a crime.

3 A. Well, you asked it in that way, so I thought it was  
4 fair.

5 Q. You're basing your assessment and your recommendation  
6 on -- in part, again, on this Arizona study, right?

7 A. That was the -- that was the germ, if you will, but  
8 the studies in Illinois basically confirm and expand that  
9 first observation.

10 Q. Let's turn our attention to Illinois. The Illinois  
11 database, that too has offender samples, right?

12 A. Yes. There's a number of different samples in there.  
13 I -- correct.

14 Q. And in those samples, you don't know how many are  
15 duplicates, do you?

16 A. Ah, I see where you're going. The answer is you don't  
17 until you do a search like this and eliminate them, but that's  
18 correct.

19 Q. And that's not what they did -- they were not able to  
20 determine the number of duplicates in Illinois in those  
21 searches, were they?

22 A. That's not correct. So in the original work that was  
23 done, there was a series of pieces of information released by

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 the Illinois State Police, and they described the number of  
2 duplicates that they removed and the number of errors that  
3 they took out. And that was part of their response. And  
4 there were some, absolutely.

5 Q. You testified you participated in the Anthony Kemp  
6 case out of Illinois; is that correct?

7 A. I don't recall. Depends what you mean by participate.  
8 There were four or five searches, and I frankly don't remember  
9 which case was -- directly hired me or consulted or they did  
10 it on their own.

11 Q. Ms. Carmon showed you a letter from the Illinois State  
12 Police on your direct exam, right?

13 A. Yes.

14 Q. And that was presented on the screen, right?

15 A. I believe so.

16 ATC [MAJ ROSS]: And with the Court's permission, I'd like  
17 to use the ELMO.

18 MJ [COL ACOSTA]: You may. As long as it's projected only  
19 to the participants, because I don't know what you're about to  
20 show and I don't think it's gone through any review as well,  
21 correct? Unless it's one of your exhibits.

22 ATC [MAJ ROSS]: Your Honor ----

23 MJ [COL ACOSTA]: What are you showing?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 ATC [MAJ ROSS]: Attachment H from AE 434, the  
2 defense motion ----

3 MJ [COL ACOSTA]: The defense motion?

4 ATC [MAJ ROSS]: ---- in "all v. all."

5 MJ [COL ACOSTA]: All right. Let's still keep it  
6 restricted to the parties and the witness and myself, please.

7 ATC [MAJ ROSS]: Yes, sir.

8 MJ [COL ACOSTA]: I'm saying that not for you, but for the  
9 court reporter who's going to hit the publish button in about  
10 a second.

11 Q. Sir, this ----

12 A. Please excuse me while I switch glasses.

13 Q. I'm showing you, again, Attachment H as discussed.

14 And I stand corrected, this is People v. Charles Thorton. Can  
15 you read that?

16 A. I can.

17 Q. And this is from the Illinois State Police; is that  
18 right?

19 A. It's correct. The date is January 3rd, 2014.

20 Q. And this is one of those cases that the Illinois  
21 officials were ordered to conduct an "all v. all" search,  
22 correct?

23 A. It looks that way.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. Now, I turn your attention to page 2, specifically  
2 this paragraph here. Would you take a moment to read that,  
3 please.

4 A. Would you like me to read it out loud?

5 Q. Just to yourself.

6 Have you had a chance to read it?

7 A. I have.

8 Q. Now, based on this letter, the Illinois database  
9 contained duplicate samples, correct?

10 A. That's correct. They knew that, and we know that.

11 Q. And it contained relatives, correct?

12 A. There are some in there, definitely.

13 Q. And the existence of relatives in the same database is  
14 important in your line of work, correct?

15 A. That's a pretty broad statement. Let's see if we can  
16 refine that. Do you mean that the presence of relatives might  
17 skew the results from the "all against all" search?

18 Q. Relatives are more likely to have the same -- the same  
19 alleles and various loci, correct?

20 A. Let's put this correctly. Relatives are more likely  
21 to have similar profiles to the one you are comparing to.

22 Q. They're more likely to have an increased number of  
23 loci, have the same figure, correct?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. I said the same thing.

2 Q. Okay. In Illinois, you don't know how many of those  
3 samples are duplicate samples, do you?

4 A. In the first run from Luna, I'm pretty confident that  
5 the Illinois State Police provided a background where they  
6 discussed the number of duplicate samples and removed them  
7 from the final result they provided. And there were  
8 absolutely duplicates, but the number of duplicates is  
9 essentially insignificant to the number of actual pairs that  
10 were provided in terms of the numbers of pairs.

11 No exact profiles were ever provided, so I don't know  
12 what the profiles are, but, in fact, the Illinois State Police  
13 did find duplicates and removed them. So my perception is  
14 that I helped them fix their database and remove duplicates  
15 which shouldn't be there, and you mentioned that it's possible  
16 that that's how they're entered.

17 Q. Now, I just showed you a letter regarding the Thorton  
18 case, correct?

19 A. You did.

20 Q. And that letter says there are duplicates in that  
21 database, right?

22 A. That was run after Luna, so they're just coming up  
23 with a discussion of what might be in there since the Luna

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 case.

2 Q. So are you testifying that after the Luna case, they  
3 removed all duplicate samples in Illinois?

4 A. Certainly not.

5 Q. Because in that letter about the Thorton case, there  
6 are duplicates, correct?

7 A. Of course.

8 Q. You don't know how many duplicates are in there is the  
9 bottom line, right?

10 A. I don't, but it's not going to change by any  
11 significant value the number of comparisons that are made, as  
12 you mentioned, nor is it going to change the overall number of  
13 similar profiles that are found at the various number of loci  
14 tested.

15 Q. Now, if I give two samples -- if I'm arrested in 2010,  
16 give a sample, and get arrested in 2020, those two samples are  
17 going to match, correct?

18 A. We don't like to use the word "match."

19 Q. They're going to have the same alleles at the same  
20 loci, correct?

21 A. We hope so. If the work was done in that -- in the  
22 lab that does those types of samples, they should be accurate  
23 enough to come up with the same profile twice.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. In your lab, they're going to be the same, right?

2 A. Damn well better be.

3 Q. Okay. So isn't it important to know how many  
4 duplicates are in the database?

5 A. No.

6 Q. Because that's going to be a match, right?

7 A. Correct. That will be a full match, and that will, as  
8 I said earlier, possibly will skew the numbers of similar  
9 pairs of profiles, definitely. Will it change the overall  
10 perspective? It will not.

11 Q. You don't know how many individuals in the Illinois  
12 database have a relative also in that Illinois database too,  
13 correct?

14 A. Absolutely. That's another example where you might  
15 indeed have a skew. Now, the relative would have to be a  
16 direct relative, so a brother, full brother, or a son and a  
17 father or a son and a daughter.

18 But once you've passed those direct relatives, you're  
19 not going to see much of a difference at all. Those are far  
20 enough away that you can't get that information from this  
21 kinds of genetic analysis.

22 Q. You're familiar with the National DNA Index System,  
23 right?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. You're ----

2 Q. You know what that term is?

3 A. NDIS, I believe, is how I know it, but, yes, it's the  
4 database.

5 Q. For the entire country, right?

6 A. Correct.

7 Q. It has a collection of the samples, the databases from  
8 all of the states, right?

9 A. And I believe also there's a federal component.  
10 There's a missing persons component. There are various parts  
11 to it.

12 Q. Are you aware that there are 19.2 million samples in  
13 that database?

14 A. The last time I looked, it was 14 or 15, but I'm not  
15 surprised that it's even larger.

16 Q. Every year they get more people, right?

17 A. I believe every year there are more additions to the  
18 database from the various states and also probably from  
19 federal work.

20 Q. You don't know how many duplicates are in that  
21 database, do you?

22 A. I don't think anybody knows.

23 Q. You don't know how many relatives are in that

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 database, do you?

2 A. Again, nobody knows.

3 Q. It's fair to assume that that database is not a  
4 random -- or not a cross section of any community, correct?

5 A. That's a great question. Nobody knows. So that's  
6 a -- would be a wonderful piece of research to do if you had  
7 access to the database. You could probably guess from the  
8 conviction rate of the various populations ----

9 Q. Do you guess in your line of work?

10 A. All the time. You make a guess, and then you do an  
11 experiment, and you compare the guess to your data. That's  
12 how work is done in the laboratory.

13 Q. By guessing?

14 A. You start off with a hypothesis, you want to use a  
15 fancy name. It's a guess.

16 Q. But you haven't -- is this -- is your recommendation  
17 to do an "all v. all" search based on a guess?

18 A. No. I know roughly what I expect, which is what you  
19 do. You come up with an expectation, you do the experiment,  
20 and you compare that expectation to the data you get. How  
21 good was your hypothesis? How near to the mark was your  
22 back-of-the-envelope calculation? You've learned something.

23 Q. And you think an "all v. all" search would be useful

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 for research purposes, correct?

2 A. Oh, there's no question about that. But I think it's  
3 more important -- that's not why I'm here and that's not why I  
4 was asked. I think it's more important to understand the  
5 profile in this case. There's lots of research I could  
6 suggest from the database, but it's important to understand  
7 what those numbers might mean.

8 Q. You provided an affidavit in this case, correct?

9 A. It's possible. I don't -- did I? I don't recall.

10 Q. Earlier this year you -- you don't recall providing an  
11 affidavit to the defense?

12 A. I don't. I'm sure it was asked and I provided it.  
13 I'm sure you have a copy.

14 Q. In that affidavit you define random match probability  
15 and you defined it as the chance that a random unrelated  
16 person would have the same profile at that specific loci,  
17 correct?

18 A. That's one definition, certainly.

19 Q. And you -- in that affidavit in and in your testimony  
20 today, you said that is an approved formula, correct?

21 A. It is.

22 Q. That is a widely used formula, correct?

23 A. It's one of the statistics that is accepted and used

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 by laboratories to try and provide strength of an association.

2 Q. In your affidavit -- if I were to tell you your  
3 affidavit has a quote that says it is important to assert that  
4 the mathematical calculation used by the FBI for calculating  
5 the RMP is correct, is that a true statement?

6 A. I'm sure it is. It is correct.

7 Q. It was true then?

8 A. It's true today.

9 Q. And it's true today.

10 You also have testified that the foundational  
11 principle of random match probability is not in dispute,  
12 right?

13 A. Not by anything I have read, learnt, or done.

14 Q. It's widely used?

15 A. Yes. We've -- we've already discussed this.

16 Q. And it's not in dispute?

17 A. Correct.

18 Q. Now, you testified about your work history earlier  
19 today.

20 A. I did.

21 Q. You've never worked at a state crime lab, have you?

22 A. Never. They would never hire me, and I would never  
23 stay.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. You've never worked at a federal crime laboratory,  
2 have you?

3 A. I'm only aware of one, and the FBI would never hire  
4 me, and they wouldn't even let me visit the laboratory.  
5 That's correct.

6 Q. You've never worked at a local crime laboratory, have  
7 you, a local government crime laboratory?

8 A. There are 400 laboratories, roughly, in the country,  
9 and if you go through all 400, we'll be here a while.

10 Q. You've never worked for any of those 400, have you?

11 A. I never have and don't.

12 Q. All of those agencies are the actual participating  
13 labs for the CODIS software system, correct?

14 A. No commercial laboratory -- I think I mentioned this  
15 earlier -- has access to state, local, or national databases  
16 by statute.

17 Q. So you can't upload a DNA profile into the CODIS  
18 system, can you?

19 A. I cannot. I can't search it. I can't upload it. I  
20 can't gain access -- access to it. No commercial lab can do  
21 that.

22 Q. As part of your casework, you've never run a CODIS  
23 search?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. Don't have access.

2 Q. You don't know how long it takes to run the search?

3 A. Oh, yes, I do.

4 Q. You've never ----

5 A. That's not true. I have seen that work, and we've had  
6 that work done at the Illinois State Police, the "all against  
7 all." We do know how long it takes to search. And given the  
8 size of the computer power and the memory that you can have,  
9 the time to run a search is essentially nothing because it  
10 searches itself, I forget, every two or three minutes now. So  
11 the time is not an issue.

12 Q. You have personally seen, at the FBI, somebody run a  
13 CODIS search?

14 A. Never.

15 Q. You've only seen it in Illinois, correct?

16 A. I've never -- let's get this clear. I have never ----

17 Q. Please.

18 A. ---- been in the room when they run a search. I don't  
19 have access to that; they would never let me in. That's not  
20 going to happen to anybody who isn't part of that  
21 organization.

22 Q. How long would it take to run an "all v. all" search  
23 at the national level?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. Well, I know how long it took to run 550,000, and that  
2 was back in -- I don't know -- 2016. We're at least five  
3 years on in terms of doubling of computer speed every year  
4 and, never mind the memory which is quadrupled every six  
5 months, and that took less than an afternoon.

6 Q. And ----

7 A. So I do not believe there's any argument that can be  
8 made that somehow the computing power or memory required to do  
9 this is lacking. I think that argument will not hold water  
10 for a second.

11 Q. But again, that's the Illinois computer system,  
12 correct?

13 A. Excuse me? It's the same computer software  
14 everywhere. So you're telling me now that the FBI doesn't  
15 have a computer system large enough to do this?

16 Q. In Illinois, the size of the database was about  
17 500,000, correct?

18 A. It's bigger now, but it's five -- 546 or something on  
19 the piece of paper.

20 Q. There are 19.2 million samples in the national DNA  
21 index, correct?

22 A. Yeah. Well, it's round it up to 20 million. You have  
23 500,000; let's round that down. So that's how much

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 difference? Forty times the difference in size.

2 Q. As you increase those numbers, the number -- as you  
3 increase the number of samples, again, the number of  
4 comparisons ----

5 A. Goes ----

6 Q. ---- increase exponentially, right?

7 A. Goes up by the number you calculated.

8 Q. So if you increase from 500,000 to 19 million, that's  
9 an exponential increase, right?

10 A. Correct. Are you concerned about the computer getting  
11 tired?

12 Q. Yes, I am concerned about the computer getting tired.

13 A. I think your -- your concern is misplaced.

14 Q. Okay. You testified in the Anderson v. City of  
15 Chicago case, correct? Do you recall that case?

16 A. I do. I think that's a recent case, civil case in  
17 federal court. I think that's correct.

18 Q. Out of Chicago?

19 A. In Chicago for sure.

20 Q. And would you agree with the statement that every  
21 forensic lab encounters and then interprets partial profiles?

22 A. Absolutely true.

23 Q. That's what you testified to?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. It was -- I testified to it because it was correct and  
2 is correct.

3 Q. And you also testified that the wholesale dismissal of  
4 a partial profile, because it's a partial profile, is not part  
5 of forensic practice. You testified to that, too, as well,  
6 right?

7 A. That -- not only did I testify to it, I testified to  
8 it because it is correct and was correct. And opposing  
9 counsel's expert tried to describe that a partial profile  
10 couldn't be analyzed, and that's not true.

11 Q. This is a partial profile, correct?

12 A. It is. You didn't hear me complain about the fact  
13 that it was analyzed. I haven't. There's no reason to.

14 Q. Now, every lab -- let me take that back.

15 Your lab is accredited by the FBI, correct?

16 A. No. I mean, it is accredited, but the FBI doesn't  
17 perform the accreditation. So the accreditation is performed  
18 by an outside agency that uses a set of written standards to  
19 compare what the lab does and has to those standards, and one  
20 set of standards is promulgated by the FBI.

21 Q. Those standards promulgated by the FBI, those are  
22 generally used in the forensic community, correct?

23 A. No. They are used in the United States.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. Okay.

2 A. The community is actually all of the forensic labs, if  
3 you will, across the world, and the United States is only one  
4 part of that community, if you want to call it that.

5 Q. In the American forensic community, they're generally  
6 used, correct?

7 A. Thank you.

8 Q. Labs have to undergo a validation process too,  
9 correct?

10 A. In order to release a procedure, process, or reagent  
11 into -- into casework, then the laboratory has to develop a  
12 validation of that process, method, or material before it can  
13 be used on casework.

14 Q. You weren't part of the FBI's validation process, were  
15 you?

16 A. I'm sorry. I didn't catch that.

17 Q. You were not part of the FBI's validation process,  
18 were you?

19 A. I have nothing to do with the FBI Laboratory.

20 Q. In Illinois, are you aware that there is a specific  
21 statute permitting an "all v. all" search?

22 A. There is not -- I don't believe there is one.

23 Q. You don't believe there's a statute allowing it?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. I don't believe there's a specific statute describing  
2 "all v. all."

3 Q. Is there a specific statute in Maryland permitting  
4 such a search?

5 A. I'm not an attorney, and I'm not aware of any of the  
6 statutes, really, in Maryland. There were a lot of arguments  
7 made about not running that, and I don't recall that those --  
8 that the resistance to running it by the Illinois State Police  
9 or their attorneys involved the statute, but maybe I wasn't  
10 involved in all of those arguments, so ----

11 Q. Okay.

12 A. ---- I can't speak to the statutes. I'm not an  
13 attorney.

14 Q. The methodology -- the methodology of performing  
15 forensic DNA analysis in this case was a PCR/STR methodology,  
16 correct?

17 A. Sure. You could add capillary electrophoresis or  
18 amplification. That's the method.

19 Q. That's used by labs all throughout the country,  
20 correct?

21 A. To my knowledge, it's the only -- well, that's not  
22 true anymore. It's essentially the only approved method to  
23 develop a DNA profile. Recently sequencing has been added to

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 that list, but the vast, vast majority of all the work uses  
2 essentially the method with respect ----

3 Q. Your lab follows it, doesn't it?

4 A. Absolutely.

5 Q. The science is sound, isn't it?

6 A. The process ----

7 Q. The science is sound, is it not?

8 A. The process ----

9 MJ [COL ACOSTA]: Counsel, let him finish his answer  
10 before you step back in, okay?

11 ATC [MAJ ROSS]: Yes, sir.

12 A. The process is certainly sound.

13 Q. Are you familiar with the Scientific Working Group on  
14 DNA Analysis and Methods?

15 A. Yep. Sometimes abbreviated SWGDAM.

16 Q. SWGDAM. They produce guidelines, right?

17 A. They produce -- yes, they produce guidelines.

18 Q. Different sets of guidelines, right?

19 A. Sometimes many kinds of guidelines.

20 Q. And those guidelines are generally used by labs  
21 throughout the country, right?

22 A. They're guidelines. They are setting the limits, the  
23 rails to which they hope laboratories will conform.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. You've referred to those guidelines in previous  
2 testimony, right?

3 A. They are the guidelines in this field.

4 Q. And you use those guidelines in your work, right?

5 A. We are certainly aware of them. We try to adapt them  
6 to the best we can. That's the whole -- that's the whole  
7 purpose.

8 Q. Are you familiar with the National Research Council?

9 A. The NRC.

10 Q. You know that organization, right?

11 A. I know the acronym. I don't know the organization  
12 besides from some of the things they've published.

13 Q. They've published a report known as the NRC-II, you're  
14 familiar with that, right?

15 A. There's NRC-I, if I remember, and an NRC-II.

16 Q. And that is an authoritative work in the field,  
17 correct?

18 A. It's a little old, but it was considered -- it was  
19 considered authentic and accurate at the time.

20 Q. It's accurate today, correct?

21 A. I'm sorry?

22 Q. It's accurate today, correct?

23 A. Yes, certainly.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. There is no NRC-III, is there?

2 A. That doesn't mean NRC-II is the last word, but I'm not  
3 aware of an update.

4 Q. Are you aware of anybody not using those guidelines?  
5 Any accredited lab not using those guidelines?

6 A. Oh, they're guidelines. They're not rules. They're  
7 not the standards to which the laboratory is compared to. So  
8 you're -- the idea is to try and follow the guidelines, but  
9 they're not the standards to which the laboratories are  
10 compared.

11 Q. That's not my question. Are you ----

12 A. But that is how it works in the lab.

13 Q. Right.

14 A. So the guidelines don't have the force of a standard.

15 Q. Are you aware of any accredited lab rejecting those  
16 guidelines?

17 A. Rejecting? There are lots of guidelines. I don't  
18 think every lab follows every guideline.

19 Q. The NRC guidelines, are you aware of any lab not  
20 following those guidelines?

21 A. No, but I haven't -- I don't inspect laboratories. I  
22 don't view their laboratories. I review cases.

23 Q. Now, this particular evidentiary sample you testified,

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 K470, the evidence in this case?

2 A. Certainly.

3 Q. Now, that was a profile developed at nine loci, right?

4 A. Profiler Plus was the commercial kit that was used.

5 Q. And there were eight loci on that partial profile,  
6 correct?

7 A. There were eight short tandem repeat results on the  
8 allele summary that was on the screen earlier.

9 Q. And that was entered into CODIS, right?

10 A. That -- I believe so.

11 Q. You believe so? You reviewed documents that showed  
12 that, right?

13 A. I have reviewed documents that stated that.

14 Q. And, in fact, one of those documents was presented to  
15 the commission, correct?

16 A. That was what the document says.

17 Q. And there's only been one hit in the entire National  
18 DNA Index System, correct?

19 A. So that letter states.

20 Q. And you've relied on that letter in your opinion,  
21 correct? That is what the letter states, right?

22 A. That's what the letter states. I don't know if I  
23 relied on it. I'm aware of it.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. Are you aware that that sample continues to be  
2 compared with new samples as they come in?

3 A. Yes. That's what happens when it goes into the  
4 database. There's a continuous -- well, continuous, but  
5 there's a continuous search of the database for all profiles  
6 that are entered.

7 Q. And right now, there are 19.2 million samples in that  
8 system?

9 A. I'm sure your number is more up to date than mine.

10 Q. And there was only one hit?

11 A. In that database.

12 Q. That is the largest database in the country, correct?

13 A. I think it's confusing. I think that's ----

14 Q. Let me ----

15 A. ---- the summation of all the databases and it is  
16 bigger than any of the individual state databases -- pardon  
17 me -- certainly.

18 Q. The national database has all the information from  
19 every state database, correct?

20 A. That's my understanding.

21 Q. And the federal databases too, correct?

22 A. I believe that's added in as well.

23 Q. And there was one hit out of that entire database?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. So the letter claims.

2 ATC [MAJ ROSS]: I beg the commission's indulgence.

3 [Pause.]

4 ATC [MAJ ROSS]: Thank you, Your Honor. No more  
5 questions.

6 MJ [COL ACOSTA]: Defense, redirect?

7 DC [MS. CARMON]: Yes, sir. Thank you.

8 Your Honor, if I may have use of the ELMO.

9 MJ [COL ACOSTA]: You may.

10 DC [MS. CARMON]: Thank you. And, Court and Counsel, I'm  
11 referring to AE 434 Attachment H.

12 **REDIRECT EXAMINATION**

13 **Questions by the Defense Counsel [MS. CARMON]:**

14 Q. Dr. Reich, I'm going to show you the letter received  
15 back from -- in response to a court order for an "all v. all"  
16 search, and this is the letter received by Judge Clay in 2014.  
17 And I'd just like to draw your attention to the number of  
18 associations per locus are provided below.

19 A. Yes, I see that.

20 Q. And so here, do we have the Illinois State Police  
21 database reporting when they do have offender duplicates or  
22 identical siblings or relationships?

23 A. No. They're just describing how many specimens have

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 the same profile at nine, 10, 11, 12, and 13.

2 Q. Let me draw your attention specifically to 12. In the  
3 A, B, C underneath the reporting of how many pairs had 12  
4 locus associations, do we have here the Illinois State Police  
5 reporting how many duplicates we have ----

6 A. We do.

7 Q. ---- at B?

8 A. So of the five pairs that they mention at 12, they  
9 have one which isn't a complete DNA match. They have three  
10 which are duplicates and so do not form part of the five, if  
11 you will; and one identical sibling, which identical siblings  
12 would have the same short tandem repeat, STR profile.

13 So out of the five, those -- there's one which is a  
14 real result and four which are found, but three of them are  
15 duplicates. So that's still two unrelated individuals who  
16 have similar profiles at 12.

17 Q. And let me draw your attention back to number 1 here  
18 that states 2,795 pairs of specimens had nine locus  
19 associations.

20 What does A, the fact that 2,795 no-matches were  
21 reported? What does that mean?

22 A. Well, they're looking at the full profile. So recall  
23 this was done -- I don't see the date, but this was done

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 certainly when the profile standard was 13. So the question  
2 is you have a pair which have nine loci the same, what about  
3 the other four?

4 And so they're claiming, and it's probably correct,  
5 that the other four would exclude those two as being the same  
6 person. But if you looked at nine, you wouldn't be able to  
7 make that exclusion. So that's what the no-match description  
8 is saying.

9 Q. And so suffice it to say, when the Illinois State  
10 Police laboratory gives their results, they are able to  
11 specify when they have found offender duplicates or  
12 genetically identical siblings; is that right?

13 A. That's correct. In the earlier searches there was a  
14 separate document that provided that information and did the  
15 final subtraction from the first round of information taking  
16 out those duplicates. Here, it's done per association, if you  
17 will.

18 Q. Thank you.

19 I understand that in the civil case, in Anderson, that  
20 you previously testified about the -- analyzing a partial  
21 profile. Do you recall giving that testimony?

22 A. I do. I -- there was a case with a partial profile,  
23 and opposing counsel's expert made a claim that you couldn't

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 or shouldn't analyze partial profiles, which was absurd, and I  
2 spoke to opposing counsel here and said the same.

3           Laboratories -- and I sort of said this at the very  
4 beginning when I mentioned that the evidentiary sample is  
5 unknown. You don't know what you're going to get until you go  
6 through the whole process. And sometimes it's a partial  
7 profile, sometimes it's a mixed profile, sometimes it's a  
8 mixed partial profile. But you analyze it just the same.

9           Q. And when you do the analysis, the expression of the  
10 strength of that analysis is expressed in a random match  
11 probability; is that right?

12          A. That's one of the approved statistical approaches.

13          Q. And so I guess what's really important for us to  
14 understand here is the analysis should go forth, but it's what  
15 that analysis means, and the context that analysis should be  
16 placed into when we're talking about this "all v. all" search;  
17 is that right?

18          A. That's correct. The "all v. all" search doesn't  
19 change the database. It doesn't negate the use of the  
20 statistic. It doesn't do anything but tell you how similar we  
21 really are, and so it avoids that big number, which is  
22 correct, but we have no context to understand it. And there's  
23 no comparison with a full profile, what would that look like.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           And we need to be clear that although the standards  
2 requires a statistic, a strength of the association, there's  
3 no threshold that's provided. There's no number in the  
4 standard that says once you get to this number, you're done,  
5 you don't have to do anymore. It's identity. No such  
6 threshold exists or can be calculated. So you can only just  
7 provide your mathematical random man not excluded or your CPI,  
8 whatever statistic you're going to use, and it sits there  
9 without any context, without any understanding.

10           And so the whole idea that I had at the very beginning  
11 years ago in Luna was to take that and see if that provided  
12 more information to the trier of fact, and that was the origin  
13 of my suggestion, and it's the origin of my suggestion today.

14           Q. And so were we in front of the members, the  
15 government's proffered DNA evidence, their random match  
16 probability, at least one of the statistics for the African  
17 American population, is 1 in 17 trillion, meaning that the  
18 probability of selecting an unrelated individual having the  
19 same profile, that eight-locus partial profile, is 1 in  
20 17 trillion, at least from the African American population.

21           What does that statistic say to you? What does it  
22 mean?

23           A. So people, as it turns out, don't think in statistical

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 terms or probabilistic terms. If they did, Las Vegas wouldn't  
2 exist. So the -- your -- your colleague, the opposing  
3 counsel, was talking about the number of comparisons you have  
4 to make. And the number is very big. And so -- but that's  
5 what you're also doing with the random man calculation, is  
6 you're doing a comparison, one profile to the next.

7 And so if you have all of the profiles that could  
8 possibly exist, how many profiles, on average, would you have  
9 to go through before you find that profile? It doesn't ----

10 Q. And to be clear ----

11 A. Excuse me. It doesn't tell you what the next  
12 comparison is going to be. It could be the next one, or you  
13 might have to wait ten times longer. But on average, that's  
14 what you're going to come up with. Is that sufficient for  
15 identity? And the answer is it's not.

16 Q. And specifically here, when we're talking about  
17 finding the same profile in an unrelated individual, we're  
18 talking about these eight loci that have been identified ----

19 A. Yes.

20 Q. ---- out of 13?

21 A. That's the only data we have from that evidentiary  
22 sample.

23 Q. And so if we were to be granted the "all v. all"

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 search and be able to tell the jury at eight locus  
2 associations in the national database, we have X number of  
3 associations at eight loci, how does that help them understand  
4 this statistic that I just read?

5 A. The hope is that by knowing the number of pairs of  
6 similar profiles, and one would hope that you would get the  
7 same kind of result from the national database that you had  
8 got from the Illinois, that is you would have results at  
9 eight, nine, 10, and 11, that it would help the trier of fact  
10 figure out how strong eight really is for the identification  
11 of the defendant.

12 That's the only purpose of DNA is for identity, how do  
13 we gauge or understand the strength of the association. And  
14 that's the whole purpose.

15 Q. And so were the government to present this random  
16 match probability, the other side of that coin, meaning  
17 understanding the strength of an eight-locus profile, would be  
18 the "all v. all" search results; is that right?

19 A. That would be my argument.

20 Q. The -- now, you have been involved with, at least  
21 consulting-wise or testimony, with the "all v. all" searches  
22 that have done -- that have gone on in Illinois; is that  
23 right?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           A. Right. I -- some of those cases I was directly  
2 involved in and others just used either filings or the earlier  
3 work. I -- I review a lot of cases, and the specifics of  
4 every one, if you don't show me the science, I frankly don't  
5 pay much attention to.

6           Q. And the Illinois State Police database has been able  
7 to run these searches successfully and produce locus  
8 associations at various numbers to court and counsel; is that  
9 right?

10          A. That's correct. There's been no problems that I've  
11 been informed with or I've been aware of where it's been a  
12 difficulty.

13          Q. And the times where the Illinois State Police has been  
14 asked to run the "all v. all" search, these have involved,  
15 like our case, partial DNA profiles; is that right?

16          A. That's correct. If a full profile is obtained, there  
17 really is no dispute about the identity. You can dispute  
18 other aspects, whether it's relevant or so forth or where it  
19 came from. But a full profile, by definition, is considered  
20 sufficient for identity.

21          Q. We have here in this case eight loci that are culled  
22 that we can use the data from. A full profile would have been  
23 13; is that correct?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           A. Right. I want to correct that slightly. It's not we,  
2 it's the FBI that did the analysis, and so they're the ones  
3 who came up with the eight, and the full profile at the time  
4 was indeed 13.

5           Q. And so if in the ninth locus or the tenth locus,  
6 that -- those alleles did not match, were not consistent with  
7 Mr. al Nashiri's reference profile at that tenth locus, what  
8 would that mean?

9           A. That would exclude him as a contributor.

10          Q. And so the statistic, the numbers from the  
11 "all v. all" search that we are asking for, the expression of  
12 strength of an eight-locus profile, when you find other  
13 eight-locus profiles in the database that match at eight  
14 different -- not eight fixed as cocounsel said ----

15          A. Correct.

16          Q. ---- not eight fixed but eight different loci, what  
17 does that tell us about the rarity of an eight-locus profile?

18          A. It tells us it's not as rare as we might imagine or  
19 hypothesize from the random man calculation. That's really  
20 what it's saying. And it's just a random event that the loci  
21 that are used here are used. They were in the kit. It could  
22 have been a different kit. It would have been a different  
23 eight or whatever number it was.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           So the fact that you can find similar profiles at  
2 eight, nine, 10, and 11 gives an indication of the strength,  
3 the rarity of your partial profile.

4           I believe I mentioned earlier that it would be really  
5 helpful to know whether you had them at 17, 18, 19, and 20  
6 because the now partials are now 19, 18, 17. How good is that  
7 partial profile? We know eight isn't very good. How are we  
8 doing at the upper end? Do we need 25 markers to really come  
9 up with an identity that's without dispute? We don't know.

10          Q. But the numbers from the requested search would go a  
11 long way in answering those questions; is that right?

12          A. They would go a distance. I can't say whether it's  
13 short or long, but you would learn a great deal from that  
14 analysis.

15          DC [MS. CARMON]: The court's brief indulgence.

16 [Pause.]

17          DC [MS. CARMON]: Thank you, Your Honor. I have nothing  
18 further. I would just ask that Dr. Reich be allowed to remain  
19 in the courtroom if the government were to call witnesses of  
20 their own.

21          MJ [COL ACOSTA]: He will if they do.

22          DC [MS. CARMON]: Thank you.

23          MJ [COL ACOSTA]: I have a question for him first, though.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 WIT: Yes, sir.

2 **EXAMINATION BY THE MILITARY COMMISSION**

3 **Questions by the Military Judge [COL ACOSTA]:**

4 Q. Is the "all v. all" search that would be conducted of  
5 the 20 million samples that are there, wouldn't that be  
6 impacted by the timing of the previous test, whereas in some  
7 of the previous tests would have 13 loci versus 20 that they  
8 were seeking to match up; is that correct?

9 A. The -- it's not going to impact the search. It's  
10 certainly going to influence the conclusions you would reach,  
11 because you are correct. Some of those are 13. Some of those  
12 are 15. Some of those are 20. There -- if you wanted to do  
13 it differently, you could probably ask for the database to --  
14 to differentiate that, but you still have eight you're  
15 comparing. That doesn't change whether you have 13 to begin  
16 with or 20 at the end.

17 Q. At the time that the test was originally done, were  
18 the 13 standardized? Did every DNA test look for the same 13  
19 loci?

20 A. That's correct, Your Honor.

21 MJ [COL ACOSTA]: All right. Any questions based upon  
22 mine, Defense?

23 DC [MS. CARMON]: No, sir. Thank you.

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 MJ [COL ACOSTA]: Government?

2 ATC [MAJ ROSS]: No, Your Honor.

3 MJ [COL ACOSTA]: All right. Sir, you're -- for the  
4 purpose of this hearing, you are temporarily excused. Do not  
5 discuss your testimony with anyone other than counsel for  
6 either side or the accused. You can step down and you can  
7 take a seat with the defense counsel at their table over  
8 there.

9 WIT: Thank you, Your Honor.

10 **[The witness was warned and left the witness stand.]**

11 MJ [COL ACOSTA]: Defense?

12 DC [MS. CARMON]: Your Honor, we have no further witnesses  
13 in support of AE 434.

14 MJ [COL ACOSTA]: Government?

15 ATC [MAJ ROSS]: The government would call Lisa  
16 Grossweiler.

17 Raise your right hand.

18 **LISA GROSSWEILER, civilian, was called as a witness for the  
19 prosecution, was sworn, and testified as follows:**

20 **DIRECT EXAMINATION**

21 **Questions by the Assistant Trial Counsel [MAJ ROSS]:**

22 Q. Ms. Grossweiler, you're the National DNA Index System  
23 custodian, correct?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. Correct.

2 Q. That's referred to as NDIS, right?

3 A. Yes.

4 Q. What is NDIS?

5 A. NDIS is a database of samples that are performed -- or  
6 that are -- it's a database of samples that are offered by  
7 state, local, and federal laboratories pursuant to a  
8 legislative authority and that contains the -- in 1994, the  
9 National DNA Index System was federal law allowed the FBI to  
10 create this index and this index contains -- or contained  
11 crime scene samples. It also contained offender samples, and  
12 it also contains missing persons samples.

13 Q. How many participating laboratories are in NDIS?

14 A. There are 203 laboratories and that contains local  
15 laboratories, state laboratories, and federal laboratories.

16 Q. Does every state have a database?

17 A. Every state has a database -- excuse me -- including  
18 the FBI is considered a state in the -- in this context. The  
19 FBI Laboratory is considered a state. The -- there's also the  
20 District of Columbia that's considered a state. The  
21 Department of Defense Laboratory is considered a state, and  
22 Puerto Rico is considered a state. So that's 54 state  
23 laboratories.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And they all participate?

2 A. Yes.

3 Q. How many total samples are in NDIS?

4 A. Right now, total samples is a little over 20-, about  
5 20.4 million samples.

6 Q. How is that is broken down?

7 A. That's broken down into forensic samples, which there  
8 is a little over 1 million profiles, about 1.2 million  
9 forensic profiles; and forensic profiles, I mean crime scene  
10 sample profiles.

11 Q. Profiles taken from the scene of a crime?

12 A. Correct.

13 Q. What other types of profiles do you have?

14 A. And then there's also profiles that are from the  
15 offenders, and that is including convicted offenders,  
16 arrestees, detainees.

17 Q. How many of those are in the system?

18 A. 19.2 million and growing.

19 Q. Now, of the offender database, are those numbers  
20 broken down in any percentages in terms of racial or ethnic  
21 group?

22 A. No.

23 Q. Do you have percentages of duplicate samples?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. No.

2 Q. Are duplicate samples in NDIS?

3 A. Absolutely.

4 Q. How do you know that?

5 A. I know that, one, from my personal experience as being  
6 the FBI's state CODIS administrator. I oversaw the federal  
7 DNA database units, CODIS unit, for that. And I do know that  
8 there are duplicates that are in there that we find throughout  
9 the year or find out through matches, that there are  
10 duplicates that we are aware of.

11 In addition, there are other state laboratories that  
12 have duplicates and they want to maintain those in there  
13 because it does help. If they need to rerun a sample, there's  
14 already a duplicate sample for that particular individual in  
15 there. So they do not get removed from -- from state  
16 laboratories, and certainly they don't get removed from the  
17 federal laboratory.

18 Q. Do you have any percentage of samples where they  
19 sample -- let me take that back.

20 Do you have numbers of the amount of relatives that  
21 are included in NDIS?

22 A. No.

23 Q. Are you required to keep that information at all?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. No.

2 Q. Is there any way to determine that?

3 A. No. At NDIS, I do not have any personal identifying  
4 information about the samples that are in NDIS. They are  
5 provided by the state laboratories regarding the offenders.  
6 They have the information regarding the name and any -- the  
7 name for that individual.

8 I do not have any personal identifying information.  
9 All I have at NDIS is the sample profile, the laboratory that  
10 generated and contributed that sample to the National DNA  
11 Index System.

12 Q. What is CODIS?

13 A. CODIS is the software that is used to compare these  
14 DNA profiles at the local level, at the state level, and also  
15 at the national level.

16 Q. Tell me about your qualifications, your formal  
17 training in the CODIS software system.

18 A. I am a CODIS user. I started in 2005 as part of the  
19 federal DNA database unit, where I was qualified as a DNA  
20 examiner. Part of my duties was to generate DNA profiles and  
21 upload them to CODIS.

22 I also have served as a -- my time at a local crime  
23 laboratory. I was a forensic biologist, in which I was also a

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 CODIS user, and in addition the CODIS -- local CODIS  
2 administrator for that laboratory.

3 As I mentioned earlier, for the federal DNA database  
4 unit and for the FBI Laboratory, I have been the -- I was the  
5 state CODIS administrator overseeing the FBI Laboratory's  
6 CODIS operations. And then the past two years, I have been  
7 the National DNA Index System custodian.

8 Q. Have you taught any classes on the software system?

9 A. I have trained many people. I have also given  
10 presentations on the policies and procedures and regarding the  
11 software to various entities.

12 Q. Now, tell me about your job duties as custodian of the  
13 NDIS.

14 A. I manage the daily operations and the policies and  
15 procedures. In addition, I oversee the laboratories, the  
16 NDIS -- the 203 NDIS-participating laboratories to ensure that  
17 they are maintaining their viability to remain a  
18 NDIS-participating laboratory.

19 Q. You mentioned daily operations. Could you describe  
20 those, please?

21 A. Daily operations, so with the National DNA Index  
22 System, uploads, meaning additions of samples to the National  
23 DNA Index System, happens daily. And that happens during the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 day.

2           So local laboratories -- there's a hierarchy. Local  
3 laboratories submit their profiles to the state. It's  
4 automatic. And then from there, the profiles go from the  
5 state to the national level. So once they enter something in  
6 the local level, it will go to the state level, and then from  
7 the state level to the national level.

8           And that -- those uploads happen daily, as I  
9 mentioned, during the day. And then at night, what we do,  
10 once the profiles are -- we have a cutoff time that we let the  
11 laboratories know that, you know, beyond, you know, midnight,  
12 that -- not to upload any more samples; that we will begin the  
13 searches that night. Because the CODIS software can only do  
14 one task at a time. So if it -- it can't do the searching if  
15 it's busy uploading. So the searches happen at night.

16         Q. So the CODIS software system can't both receive  
17 uploads from participating labs and run searches at the same  
18 time?

19         A. Correct.

20         Q. What about -- what are the daily operations on the  
21 weekends?

22         A. On the weekends -- so we really do searches every day  
23 of the week. During the week, in the Monday through Friday,

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 we do our general identity searches. And on the weekends --  
2 because there are searches that take a lot longer time, that  
3 we dedicate the weekends to that time in order to run those  
4 searches. Those are generally the missing persons searches  
5 and pedigree searches that are associated with that. So that  
6 happens over the weekend.

7 In addition, the weekend allows us time to have some  
8 maintenance on the system, do any uploads -- I mean, pardon  
9 me, any upgrades to the system, general maintenance, checking  
10 the system, checking the diagnostics. The checking of the  
11 diagnostics does happen daily, to make sure everything is  
12 running smoothly. And, as I mentioned, if there is anything  
13 that would require longer time, we do dedicate the weekends to  
14 that.

15 Q. Are you familiar with the term "hit" as it pertains to  
16 CODIS software?

17 A. Yes.

18 Q. What does that mean?

19 A. A hit is a confirmed match between two samples. So  
20 the CODIS software, as I mentioned, will search forensic  
21 profiles, and that happens on a daily basis, forensic profiles  
22 against other forensic profiles and offender -- offender  
23 samples, so forensic versus forensic and offender samples.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 That happens on a daily basis. When there is ----

2 Q. If I could interrupt you. You say forensic samples.

3 Those are the samples that are uploaded that day by the  
4 participating labs?

5 A. Correct.

6 Q. Okay. And they're compared against other forensic  
7 samples that are already uploaded previously?

8 A. Correct.

9 Q. Okay.

10 A. And what happens with once -- if there's an  
11 association made between a -- well, for example, a forensic  
12 crime scene sample hits to another forensic crime scene  
13 sample, and if that information is confirmed, that is  
14 considered a forensic hit. And if there is a forensic crime  
15 scene sample that hits to an offender, that is referred to as  
16 an offender hit. And when I talk about offenders, I use that  
17 in general term, meaning convicted offenders, arrestees, and  
18 detainees.

19 Q. Do you keep records of the numbers of hits per year?

20 A. Yes, we do.

21 Q. Within the last fiscal year, how many hits were there  
22 in CODIS?

23 A. We had about 41,000 confirmed hits. About 9,000 of

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 those were forensic hits. And then the -- you know, the  
2 remainder were -- were offender hits.

3 Q. What is an offender hit?

4 A. An offender hit is where a crime scene sample matches,  
5 a confirmed match between a crime scene sample and an offender  
6 sample.

7 Q. How many times did that happen?

8 A. That happened about 40 -- 40 -- a little less than  
9 40,000.

10 Q. And you mentioned forensic hit. What is that?

11 A. A forensic hit is where a crime scene sample ----

12 Q. I apologize. I just asked that.

13 A. Okay.

14 Q. You mentioned -- does a forensic hit ever -- a  
15 forensic sample, does it ever hit to a previously submitted  
16 forensic sample?

17 A. So a new crime scene sample that is entered, it is  
18 searched against all the previous forensic samples that are  
19 currently in the database, in addition to any offender samples  
20 that are in the database.

21 Q. I just want to be clear about the numbers. I was a  
22 little bit confused. You said there were 40,000 hits. What  
23 were those hits again?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. There was about nine -- it's a little more than  
2 40,000. I would say there was about 41,000 offender hits and  
3 about 9,000 forensic hits. So that's closer to 40 -- 47.

4 Q. Okay.

5 MJ [COL ACOSTA]: Is that different from what you said  
6 before where you said you had 41,000 confirmed hits; that nine  
7 were forensic hits and about 32,000 were offender hits?

8 WIT: I misspoke. So it's 41,000 -- 31-- apologies.  
9 41,000 offender hits, 9,000 forensic hits.

10 Q. Okay. And an offender hit, again, is where a sample,  
11 forensic sample hits to an offender who's provided his sample?

12 A. Correct.

13 Q. And a forensic hit is when an evidence sample hits to  
14 another evidence sample that had been previously submitted?

15 A. Correct.

16 Q. I just wanted to clarify that.

17 When an evidentiary sample is uploaded into the  
18 system, how long does it stay there?

19 A. It will stay there indefinitely.

20 Q. Will it continue to be checked with new forensic  
21 samples as they're uploaded?

22 A. Yes.

23 Q. Will it be continued to be searched against new

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 offender samples as they're uploaded?

2 A. Yes.

3 Q. Are you familiar with an "all v. all" search?

4 A. Yes.

5 Q. And you were in court when the previous witness was  
6 testifying about such a search, correct?

7 A. Yes.

8 Q. Has that ever been done at NDIS?

9 A. No. An offender "all v. all" search has never been  
10 done at NDIS.

11 Q. Is that allowed under federal law?

12 A. No, it is not.

13 Q. Is that allowed under FBI guidelines?

14 A. No, it is not.

15 Q. What access does a defendant have to the CODIS  
16 software system?

17 A. The defendant has a right to the samples that were  
18 provided -- or, excuse me, tested in his case. That does not  
19 provide the defendant access to everything that's in NDIS.

20 Q. Is the CODIS software system configured to run an  
21 "all v. all" search?

22 A. No, it's not.

23 Q. Why not?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. Because that's a search that we do not do, and it's  
2 not authorized by federal law to perform.

3 MJ [COL ACOSTA]: Ma'am, if I could just ask you to speak  
4 just a little bit slower right now.

5 WIT: Sure.

6 MJ [COL ACOSTA]: Thank you.

7 Q. At the NDIS level, how many comparisons would be --  
8 would be required to do an "all v. all" search?

9 A. So if you had to do an "all v. all" search, which  
10 would mean 19.2 -- because -- because we're talking just about  
11 offenders, that it's 19.2 million offender samples versus the  
12 19.2 million offender samples.

13 So searching the 19.2 million offender samples against  
14 themselves, that would be 368,640,000,000,000 ----

15 Q. A big number.

16 A. ---- comparisons. Very large number.

17 Q. But it's 19.2 times 19.2 million ----

18 A. Right.

19 Q. ---- right?

20 19.2 million times 19.2 million?

21 A. Correct.

22 Q. Which is a very large number, correct?

23 A. Correct.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And each one of those comparisons require some amount  
2 of time for the software system to do, correct?

3 A. Yes.

4 Q. Now, you were in court earlier when the mathematical  
5 formula was discussed on the number of comparisons in an  
6 "all v. all" search, correct?

7 A. Meaning the N times N minus 1 over 2?

8 Q. Yes.

9 A. Okay.

10 Q. Now, the divided by 2, is that accounted for in a  
11 CODIS search?

12 A. No. The CODIS, that -- that pairwise comparison  
13 formula is used in statistical value. The CODIS software does  
14 not have that logic. So what would happen is the 19.2 --  
15 19.2 million samples would search against one another. So it  
16 would be 19 -- 19.2 million, which is the N, and if you want  
17 to take 19.2 million minus 1, it still -- it still averages,  
18 you know, with -- it still comes out to be the 368 trillion  
19 comparisons.

20 Q. So in an "all v. all" search, you start with the first  
21 sample, and it runs it all the way across the 19.2 million,  
22 right?

23 A. Correct.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And when you do the second sample, does it go back to  
2 that first one?

3 A. Yes.

4 Q. So there's a duplicate search there?

5 A. Correct.

6 Q. Is the CODIS software system designed to account for  
7 the duplicate search?

8 A. No. It will, as I mentioned, it will continue -- it  
9 will search the first one all the way through, and it will go  
10 to the second one, and it will still go back to the first one.  
11 It will do the duplicate searches.

12 Q. So twice as many comparisons?

13 A. Correct.

14 ATC [MAJ ROSS]: Thank you. That's all the questions I  
15 have for you. If you would, please, answer any questions that  
16 opposing counsel has.

17 MJ [COL ACOSTA]: Defense, you may proceed.

18 DC [MS. CARMON]: Thank you, Your Honor.

19 **CROSS-EXAMINATION**

20 **Questions by the Defense Counsel [MS. CARMON]:**

21 Q. Good afternoon.

22 A. Good afternoon.

23 Q. The Illinois State Police Laboratory is a

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 CODIS-participating laboratory; is that correct?

2 A. It's an NDIS-participating laboratory, yes.

3 Q. And they maintain access to NDIS in their laboratory;  
4 is that correct?

5 A. Yes.

6 Q. And they maintain access to the CODIS software in  
7 their laboratory; is that correct?

8 A. Yes.

9 Q. You are aware that several "all v. all" searches  
10 were -- excuse me. You were aware that several "all v. all"  
11 searches were court ordered of the Illinois State Police  
12 Laboratory; is that correct?

13 A. I am aware.

14 Q. And again, their state laboratory is a participant in  
15 your larger national laboratory in NDIS; is that correct?

16 A. Correct.

17 Q. The Illinois State Police Laboratory still maintains  
18 their access to NDIS; is that correct?

19 A. Yes.

20 Q. And so after those searches were performed, the  
21 Illinois State Police Laboratory did not lose their access to  
22 NDIS; is that right?

23 A. Correct.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And they did not lose access to the CODIS software; is  
2 that correct?

3 A. Correct. Based on their state -- their court order  
4 was a state-ordered court order based -- excuse me, handled by  
5 the state laboratory.

6 Q. And the CODIS software at the state laboratory level  
7 is the same software employed by the FBI at the national  
8 level; is that right?

9 A. Yes.

10 Q. And so the Illinois State Police ----

11 MJ [COL ACOSTA]: Counsel, or both of you, I'm just  
12 getting the warning light to have you slow down ----

13 DC [MS. CARMON]: Oh, I'm sorry.

14 MJ [COL ACOSTA]: ---- for interpreters. Thank you.

15 DC [MS. CARMON]: Will do.

16 Q. The Illinois State Police Laboratory's CODIS system is  
17 the same as your national system; is that correct?

18 A. The software is the same.

19 Q. The software is the same. And so the Illinois State  
20 Police Laboratory was capable using that same software of  
21 performing that "all v. all" search in their own state  
22 database; is that right?

23 A. They were. I don't know the configurations that they

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 did the search with, and certainly it's a lot less samples  
2 than are -- that are compared in the National DNA Index  
3 System.

4 Q. But suffice it to say with the correct tweaking, the  
5 CODIS software can handle a search like the "all v. all"  
6 search; is that correct?

7 ATC [MAJ ROSS]: Object to the form of the question.

8 MJ [COL ACOSTA]: I'm sorry. I can't hear you.

9 ATC [MAJ ROSS]: Object to the -- object to the form of  
10 the question, "tweaking." It's overbroad.

11 MJ [COL ACOSTA]: I can't -- just stand up and speak up.

12 ATC [MAJ ROSS]: Object to the form of the question, Your  
13 Honor. Tweaking? I think it's overly broad. I'd ask that  
14 she ----

15 MJ [COL ACOSTA]: Okay.

16 ATC [MAJ ROSS]: ---- specify what she means.

17 MJ [COL ACOSTA]: Defense.

18 DC [MS. CARMON]: Yes, Your Honor.

19 Q. Ms. Grossweiler, you testified ----

20 MJ [COL ACOSTA]: To the extent, normally I like to rule  
21 on an objection before. I'm not trying to be pedantic in any  
22 way.

23 DC [MS. CARMON]: No, no, no.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 MJ [COL ACOSTA]: Before you go on, I'll just -- I'll say  
2 sustained if you are rephrasing the question. Sustained. You  
3 can rephrase.

4 DC [MS. CARMON]: I used the word "tweaking," Your Honor,  
5 because she mentioned modifications.

6 MJ [COL ACOSTA]: Understood.

7 DC [MS. CARMON]: She did not know what modifications the  
8 state laboratory had made. So let me use that.

9 MJ [COL ACOSTA]: If you can clarify, go ahead.

10 DC [MS. CARMON]: Thank you.

11 Q. Ms. Grossweiler, let me use your word. You noted that  
12 you did not know what modifications the state laboratory, the  
13 Illinois State Police Laboratory had made to their CODIS  
14 software to run that "all v. all" search; is that right?

15 A. I used the word "configuration" ----

16 Q. Sorry.

17 A. ---- to do the search. So I -- no, I do not know what  
18 configuration they used to do their search.

19 Q. The laboratory would have had to manually configure  
20 that software; is that correct?

21 A. Correct.

22 Q. And again, that software is the same that you have at  
23 the national level; is that correct?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. The software is the -- the software is the same.

2 Q. Correct.

3 A. Certainly, you know, they have a different server.

4 They have different computers. They have a different computer  
5 system on which they house the CODIS software in order to run  
6 that.

7 Q. Would you guess that -- or would you -- if you have  
8 any personal knowledge about whether the Illinois State Police  
9 Laboratory has more sophisticated software than the Federal  
10 Bureau of Investigation?

11 A. I cannot speak to that.

12 Q. Ms. Grossweiler, what is the standard for uploading a  
13 partial profile into CODIS or using the CODIS software to  
14 upload into NDIS?

15 A. A partial profile -- so any profile that is uploaded  
16 to NDIS needs to have at least eight loci and it needs to meet  
17 a match -- currently the rules are it needs to meet a match  
18 rarity of 1 in 10 million.

19 Q. And what if that eight-locus profile is part of a  
20 mixture? Are there different standards for the uploading of  
21 that sample?

22 A. If it's a mixture sample or -- are you asking what's  
23 the standard for a mixture sample or what's the standard for a

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 partial?

2 Q. Let's start with the mixture sample, and then I want  
3 to ask you, when both of those things are present, if there  
4 are additional standards.

5 So what are the standards for uploading a mixture?

6 A. So for a mixture, it's -- it's really the same -- same  
7 thing. For any profile that gets uploaded to NDIS, it needs  
8 to have at least eight loci, results from at least eight loci,  
9 and it needs to meet a match rarity of 1 in 10 million in  
10 order to go up. So whether that's a mixture profile or a -- a  
11 forensic unknown profile -- well, you know, if it's a full  
12 profile, certainly it meets that loci requirement, and if it's  
13 a partial profile.

14 Q. Do you know why the evidentiary eight-loci profile in  
15 this case was not uploaded until 2016?

16 A. No, I cannot speak to this case.

17 DC [MS. CARMON]: The court's just brief indulgence,  
18 please.

19 MJ [COL ACOSTA]: You may.

20 [Pause.]

21 DC [MS. CARMON]: Thank you, Your Honor. No further  
22 questions. Thank you.

23 MJ [COL ACOSTA]: Government, any redirect?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 ATC [MAJ ROSS]: Nothing, Your Honor.

2 **EXAMINATION BY THE MILITARY COMMISSION**

3 **Questions by the Military Judge [COL ACOSTA]:**

4 Q. Ma'am, when this -- when the sample was uploaded in  
5 2016, if that's when it was uploaded, was it run against every  
6 other sample that was in the database?

7 A. Yes. As I mentioned earlier, any new sample -- any  
8 new crime scene sample that is uploaded to the -- the system,  
9 to NDIS, is compared to everything that already is in there,  
10 meaning all the forensic samples and all the offender samples.  
11 New offender samples -- offender samples are never searched  
12 against one another. That is not the mission of CODIS. That  
13 is not the purpose of CODIS.

14 The purpose of CODIS is to provide an investigative  
15 lead for a case. So that's why it's important to compare a  
16 forensic sample to another forensic sample because there may  
17 be information that once that's shared between the two  
18 investigations and then certainly a forensic sample to an  
19 offender sample, the investigative lead will be provided in  
20 that case.

21 Q. But the forensic samples that are supplied are run  
22 against other offender samples and other forensic samples,  
23 correct?

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. Correct.

2 Q. And in 2016 -- since 2016, when this was -- when this  
3 sample was uploaded, are you aware of any matches from these  
4 eight loci ----

5 A. That ----

6 Q. ---- in this case?

7 A. That is -- that is -- as -- as NDIS, that would be  
8 more of the casework person's question for. I mean, that's --  
9 that's knowledge I don't -- I didn't do the case.

10 Q. Okay.

11 A. You know, that would be ----

12 Q. If you don't know ----

13 A. That would be a better question to answer for me.

14 Q. ---- I don't know is an appropriate answer.

15 MJ [COL ACOSTA]: Okay. Any questions based upon mine,  
16 Government?

17 ATC [MAJ ROSS]: No, Your Honor.

18 MJ [COL ACOSTA]: Defense?

19 DC [MS. CARMON]: No, Your Honor.

20 MJ [COL ACOSTA]: Permanent? Permanent for the purpose of  
21 the hearing?

22 ATC [MAJ ROSS]: Yes, sir.

23 MJ [COL ACOSTA]: All right. You're permanently excused

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 for the purpose of this hearing. While the case is in  
2 session, don't discuss your testimony or your knowledge of  
3 this case with anyone other than counsel for either side or  
4 the accused. You can step down and return to your seat.

5 WIT: Yes, sir. Thank you.

6 **[The witness was warned, permanently excused, and withdrew  
7 from the courtroom.]**

8 MJ [COL ACOSTA]: Government, do you have any other  
9 evidence to present?

10 ATC [MAJ ROSS]: Just one more witness, sir.

11 MJ [COL ACOSTA]: All right. We're going to take a --  
12 another 20-minute recess just to allow -- I just am aware of  
13 the facilities and the rarity of them outside, so I will allow  
14 a 20-minute recess before we start with the next witness.

15 The commission is in recess.

16 **[The R.M.C. 803 session recessed at 1513, 07 December 2021.]**

17 **[The R.M.C. 803 session was called to order at 1532,  
18 07 December 2021.]**

19 MJ [COL ACOSTA]: The commission is called to order.

20 Government, all parties present as before?

21 ATC [MAJ ROSS]: Yes, Your Honor.

22 MJ [COL ACOSTA]: Defense? Defense, are all parties  
23 present as before?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 DDC [CAPT MIZER]: Yes, Judge.

2 LDC [MR. NATALE]: That is correct.

3 MJ [COL ACOSTA]: Government, you may proceed.

4 ATC [MAJ ROSS]: The government will call Alan Giusti.

5 Raise your right hand.

6 **ALAN GIUSTI, civilian, was called as a witness for the**  
7 **prosecution, was sworn, and testified as follows:**

8 ATC [MAJ ROSS]: If you would, please, have a seat and  
9 remove -- have a seat.

10 **DIRECT EXAMINATION**

11 **Questions by the Assistant Trial Counsel [MAJ ROSS]:**

12 Q. Mr. Giusti, you're a forensic examiner at the FBI; is  
13 that correct?

14 A. Yes, that's correct.

15 Q. And you performed analysis in this case; is that  
16 correct?

17 A. Yes, I did.

18 Q. Could you tell the judge about your qualifications in  
19 forensic science?

20 A. Sure. I have a Bachelor of Science degree in  
21 molecular biophysics and biochemistry from Yale University. I  
22 have a Master's of Science degree in forensic science from the  
23 University of New Haven. And I also have a Master of Science

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 degree in biodefense from George Mason University.

2 Q. Tell me about your work experience in forensic DNA  
3 analysis.

4 A. Yes. My first job -- first job was working for a  
5 private company that was eventually known as Lifecodes. And  
6 for the first six years -- well, for six years I worked there.  
7 My first responsibility was in their research efforts to  
8 develop forensic DNA tests. So we were one of the first  
9 companies to be investigating that -- that technology.

10 I then worked in their forensic testing laboratory  
11 doing casework, and occasionally would testify to my results.  
12 And my final job was as the paternity laboratory supervisor, a  
13 position I held for about eight months before leaving that  
14 company.

15 Q. When did you join the FBI?

16 A. I joined the FBI in October of 1988. And I joined the  
17 Forensic Science Research Unit located at Quantico, Virginia.

18 Q. What were your job responsibilities there in that  
19 initial job?

20 A. Sure. Again, my responsibilities were as a research  
21 scientist to help the FBI Laboratory develop their, really,  
22 newly -- newly applied forensic DNA testing capabilities, and  
23 then to refine and improve those tests through various

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 research projects.

2 Q. Did you transition to any other roles at the agency --  
3 or the bureau?

4 A. Yes. In 1994, I took a position as a DNA caseworker  
5 or a forensic examiner. It was a new position that had been  
6 opened up to people with my qualifications. And so I  
7 transferred to the DNA -- well, at the time it was called the  
8 DNA Analysis Unit, which is located at the J. Edgar Hoover  
9 Building in Washington, D.C.

10 Q. What type of work were you doing in that position?

11 A. My position there was to be a forensic examiner. And  
12 what that meant was, I was responsible for overseeing the  
13 processing of evidence submitted in cases. So I would examine  
14 the items of evidence, see what was submitted. I would direct  
15 biologists to conduct analysis for me in both forensic  
16 serology and forensic DNA analysis.

17 I would then interpret the data that was provided to  
18 me by the biologist, prepare reports, issue those reports,  
19 and, if necessary, testify to the findings in my reports.

20 Q. Did you ever transition to any other roles at the FBI?

21 A. Yes. In 2003, I actually transferred to a unit called  
22 the Chemical, Biological, Radiological and Nuclear Sciences  
23 Unit, CBRNSU. My job there was also as a forensic examiner,

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 but I was working on doing analysis on biological threat  
2 agents such as viruses, bacteria, or toxins like ricin.

3 I was with that unit for seven years. And then in  
4 2010, I returned to the nuclear DNA analysis unit, which is  
5 now known as the DNA Casework Unit.

6 Q. Is that the unit you're still in now?

7 A. Yes, it is.

8 Q. Approximately how many forensic -- how many cases have  
9 you performed forensic DNA analysis on?

10 A. I'm not sure of the exact number, but I believe it's  
11 close to 2,000 cases have been assigned to me.

12 Q. Have you ever been published?

13 A. Yes. As a result of the -- the various research  
14 projects I was involved with, I've had the opportunity to have  
15 the research work published in scientific journals.

16 Q. How many times?

17 A. About 18 publications in peer-reviewed scientific  
18 journals.

19 Q. What are the specific names of those journals?

20 A. Well, some of them are the Journal of Forensic  
21 Sciences, The American Journal of Human Genetics.  
22 Electrophoresis, International -- I'm sorry, International  
23 Journal of -- oh, gosh. I'm sorry. I'm blanking on the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 topic. I think it's International Journal of Human -- of  
2 Forensic Sciences. I'm sorry.

3 Q. Have you presented at conferences?

4 A. Yes. Again, as part of my research work, I've had the  
5 opportunity to present my research findings at various  
6 scientific meetings, such as the American Academy of Forensic  
7 Sciences, the Mid-Atlantic Association of Forensic Sciences,  
8 various forensic science communities.

9 Q. Have you been qualified as an expert in forensic DNA  
10 analysis before in state or federal court?

11 A. Yes, I have. In both.

12 Q. How many times?

13 A. I don't have a breakdown, but I've testified as a --  
14 I've been qualified as an expert about 87 times in federal,  
15 state, and local courts.

16 ATC [MAJ ROSS]: Your Honor, at this time I'd move to  
17 qualify Mr. Giusti as an expert in forensic DNA analysis.

18 MJ [COL ACOSTA]: Defense?

19 DC [MS. CARMON]: No objection, Your Honor.

20 MJ [COL ACOSTA]: He is so recognized. You may proceed.

21 Q. Now, were you in court, Mr. Giusti, during the  
22 testimony of Dr. Reich?

23 A. Yes, I was.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 Q. And did you listen to the entire testimony?

2 A. Yes, I did.

3 Q. What is an "all v. all" search?

4 A. Well, as it was described, it is a search that takes  
5 generally the DNA profiles from convicted offenders in a  
6 database and searches them against each other. Yeah.

7 Q. Are you familiar with the Arizona case?

8 A. Yes, I am.

9 Q. And what happened in the Arizona study?

10 A. Well, in the Arizona study -- and this was kind of a  
11 big deal to those of us who were caseworkers at the time --  
12 they had done an "all v. all" search of their convicted  
13 offender database, and they'd identified one sample that at  
14 nine loci had the same DNA profile. And their findings were  
15 that these were not from the same person or there was -- I  
16 believe one was African American, the other was Caucasian.

17 So it indicated what looked like a coincidental match  
18 of two unknown samples that was much more common than would  
19 have been expected.

20 Q. Does the Arizona study undermine random match  
21 probabilities?

22 A. No, it doesn't.

23 Q. Let me interrupt you. If you could, please, define

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 random match probability for the court.

2 A. Sure. A random match probability is a statistical  
3 calculation for a DNA profile, and it is defined as the  
4 probability of observing the same DNA profile -- or, I'm  
5 sorry, the probability of observing the DNA profile from an  
6 item of evidence in a random unrelated individual. So in  
7 other words, what is the probability that, given a DNA  
8 profile, you would expect -- you know, what frequency would  
9 you expect to see it in a random population.

10 Q. Does an "all v. all" search -- any results of an  
11 "all v. all" search undermine the value of random match  
12 probability?

13 A. No, it doesn't. I mean, an "all v. all" search is --  
14 it's kind of like comparing apples and oranges, I'm afraid.  
15 You expect statistically when you do an "all v. all" search to  
16 find a certain number of random samples with the same profile.  
17 Statistically -- and I believe some of the papers that were  
18 cited pointed out that when you do, you know, 2 -- you know, 2  
19 billion comparisons or however many -- I think Arizona was,  
20 like, 2 point -- in the paper it was 2.4 billion comparisons.  
21 Statistically, you expect to find profiles that have the same  
22 DNA type at a limited number of loci.

23 A way to think of it, it's kind of like -- it's like

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 the birthday problem. So you've probably heard about the  
2 birthday paradox. If you have, I think, roughly 23 people in  
3 a room, it's likely that two people will have the same  
4 birthday. You don't know what -- which birthday, but it's  
5 statistically likely. The "all v. all" search and the  
6 matching profiles is very much like that, that scenario.

7 Q. In an "all v. all" search, would a match be a match at  
8 a fixed set of loci?

9 A. No. It would -- it would represent a subset of the  
10 available loci from the DNA profiles. So if you were to  
11 consider nine loci in a total profile -- and I believe with  
12 Arizona, they were doing 13 loci, so they had 13 loci for each  
13 profile. They had a match at nine of that -- of those 13, but  
14 it could be any nine. I believe Dr. Reich said that, it could  
15 be one through nine, it could be two through 10, any  
16 combination.

17 Q. Now, does any Arizona -- "all v. all" search study  
18 undermine or provide context to the rarity of this specific  
19 profile that was analyzed, K470?

20 A. No, it does not. The random match probability that's  
21 calculated for a DNA profile, regardless of the number of loci  
22 in that profile, is specific for those loci whether it's  
23 eight, nine, 13, 20. The random match probability is

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 calculated based on a specific DNA profile, not a subset or a  
2 collection of loci within that profile.

3 Q. Does an "all v. all" search tell you anything about  
4 the rarity of the specific alleles at these -- at the loci in  
5 this sample?

6 A. No. The allele -- the specific alleles in the locus  
7 each have a frequency associated with them based on population  
8 databases. So the "all v. all" comparison doesn't impact, you  
9 know, the frequencies for each individual component of a DNA  
10 profile.

11 Q. Do we even know if those matches reflect these alleles  
12 in K470?

13 A. We -- I mean, we -- I have no idea what alleles were  
14 obtained in any of the "all v. all" searches, so I -- I can't  
15 answer that question regarding the specific alleles in this --  
16 for K470.

17 Q. Now, do different alleles have different frequencies?

18 A. Yes. I mean, and that's an important part of being  
19 able to calculate a random match probability. To do that, it  
20 requires the use of established equations from -- from  
21 genetics and those equations require you to know the  
22 frequencies for the individual components or alleles in a DNA  
23 profile.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           So, for example, if you have a 13-locus DNA profile,  
2 there's going to be two alleles or two results at each locus,  
3 so you've got 26 different alleles spread out over those 13  
4 loci, so two per locus. You need to know the allele  
5 frequencies for each of those components to calculate the  
6 overall random match probability for that profile.

7           Q. Are the results of an "all v. all" search relevant in  
8 your line of work?

9           A. No, they're not. As I said earlier, one of the  
10 reasons we were concerned with the Arizona database study was  
11 because it was being presented as undermining the use of the  
12 random match probability.

13           Fortunately, other scientists, Dr. Budowle being one  
14 of them, it -- you know, published papers describing why the  
15 "all v. all" search was not relevant to random match  
16 probabilities.

17           Q. Who is Dr. Budowle?

18           A. Dr. Budowle is really one of the preeminent forensic  
19 scientists in this country. He was my first supervisor at the  
20 FBI Laboratory and he now heads up a laboratory at the  
21 University of North Texas.

22           Q. Would an "all v. all" search be helpful in any way in  
23 your line of work?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 A. No. As I said, I -- it's an apples versus oranges  
2 comparison. It would not provide any information.

3 Q. Would it provide any context?

4 A. No.

5 Q. Would it have any research value?

6 A. No. I mean, statistically we expect these matches to  
7 occur. So there's really no point in even doing the research.  
8 It's a well-predicted phenomenon.

9 Q. Would it give you any idea of the commonality of an  
10 eight-loci match?

11 A. No. The commonality of an eight-locus match would  
12 come from the specific components of that DNA profile. So the  
13 eight loci again will have -- doing math here, it's tough --  
14 16 alleles. That random match probability would be based on --  
15 would be based on those specific 16 alleles used in that  
16 profile.

17 ATC [MAJ ROSS]: Thank you, Mr. Giusti. That's all the  
18 questions I have for you at this time. If you would, please,  
19 answer anything from the defense.

20 WIT: Sure.

21 MJ [COL ACOSTA]: Defense, are you prepared or do you need  
22 a minute?

23 DC [MS. CARMON]: Sorry, Your Honor. We don't have any

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 questions. Thank you.

2 MJ [COL ACOSTA]: Okay. Sir, you're -- permanent for the  
3 purpose of the hearing?

4 ATC [MAJ ROSS]: Yes, sir.

5 MJ [COL ACOSTA]: All right. Sir, you are permanently  
6 excused for the purposes of this hearing. While the case is  
7 in session, don't discuss your testimony or your knowledge of  
8 this case with anyone other than counsel for either side. You  
9 can step down and return to your seat.

10 WIT: All right. Thank you, Your Honor.

11 MJ [COL ACOSTA]: Put your mask back on for me, please.

12 WIT: Oh, yes.

13 MJ [COL ACOSTA]: Thank you.

14 **[The witness was warned, temporarily excused, and left the**  
15 **witness stand.]**

16 MJ [COL ACOSTA]: Government?

17 ATC [MAJ ROSS]: The government rests on this motion.

18 MJ [COL ACOSTA]: Defense, anything in rebuttal?

19 DC [MS. CARMON]: No, Your Honor. No evidence to present.

20 MJ [COL ACOSTA]: Are you prepared to argue?

21 DC [MS. CARMON]: Yes, Your Honor.

22 MJ [COL ACOSTA]: You may proceed.

23 DC [MS. CARMON]: If I may, Your Honor?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 MJ [COL ACOSTA]: You may.

2 DC [MS. CARMON]: Thank you.

3 In AE 434, what the defense is asking for is access to  
4 data which helps place into context an astronomical number,  
5 which is the population statistic that expresses the strength  
6 of the association made in the comparison of K470, which is  
7 our evidentiary sample, and K19, which is our reference  
8 sample.

9 The reference sample obviously we know came from a  
10 cheek swab from Mr. al Nashiri, and the K470 evidentiary  
11 sample came into the laboratory as a Q-tip. It is a mixture,  
12 and of what the FBI considered at that time in 2002 to be a  
13 full profile of 13 loci. In K470, we have eight loci.

14 The population statistic, the random match  
15 probability, which is the expression of the strength of that  
16 loci, is only as to that eight loci. We are missing five from  
17 what would be, again, at that time the FBI's full DNA profile.

18 The "all v. all" search is not a search of K470  
19 through NDIS. It is a search of NDIS against itself. And I  
20 think the government and I are in agreement here, and  
21 certainly our experts are, that this is not undermining the  
22 foundational science of uniqueness. This does not undermine  
23 the random match probability statistic used or its validity or

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 the correctness of the math.

2 As Dr. Reich testified, this is the flip side of the  
3 same coin, and it's a good coin, meaning we recognize the  
4 science, we recognize the math that has been done, and nothing  
5 about our request undermines any of that.

6 But the expression of the strength in the random match  
7 probability, it's an astronomical number that I'm not sure  
8 makes sense to anyone who doesn't have either Dr. Giusti or  
9 Dr. Reich's experience. It's hard to place into context that  
10 number, and it seems to be astronomical.

11 And for members and -- and the public in general who  
12 watch a lot of CSI, probably too much, there is an aura of  
13 infallibility about DNA. And so whenever DNA comes to the  
14 forefront in a case, the defense really wants to find ways in  
15 which to make sure that the science is properly understood,  
16 and in the context that it should be understood.

17 The "all v. all" search data would tell us how rare  
18 eight-locus associations are within the national database.  
19 And understanding that we are much more alike genetically than  
20 we are different; that we are 99 percent alike. There is  
21 1 percent that is different. And then there's even less of  
22 that in these markers that the FBI has selected to compare as  
23 to where -- what alleles are found where. Of course, now

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 that's 20. Back in 2002, it was 13.

2           What this data would show and place into context for  
3 the members is the strength of a partial profile itself. And  
4 the government is correct, we're not asking for focused or  
5 specific loci to be run. We are asking for the database to  
6 run against itself and tell us where you find eight, nine, and  
7 10 loci associations, meaning profiles that somewhere in the  
8 loci that are available, be it 13 or 20, match at that eight,  
9 nine, and 10 number.

10           And I think it's a powerful statistic, and certainly  
11 the Illinois courts have found so. In fact, they have  
12 reversed decisions where the search was not allowed, because  
13 they find that it absolutely would be helpful to the trier of  
14 fact to be able to consider how rare a partial profile is.

15           And what you've heard from Dr. Reich, and I'm sure  
16 Dr. Giusti would not -- would not quibble with this either,  
17 because we are missing five loci from the full 13-loci profile  
18 that the FBI mandated in 2002, we have a lot of data that's  
19 missing. And, in fact, if at that ninth loci Mr. al Nashiri's  
20 reference profile was different than K470 at the ninth, which  
21 is currently missing, he would be excluded.

22           And so we have a lot of data that we are missing,  
23 which I think makes it all the more important that we are able

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 to show the members how easy it is. And statistically  
2 speaking, we do expect that result. This is not a revelation.  
3 But we should be able to tell them how easy it is to find  
4 eight-, nine-, 10-locus associations within the database where  
5 people are the same. Because what we do not know is, in the  
6 missing five loci from K470, whether Mr. al Nashiri's  
7 profile -- or whether the K470 profile would match a lot of  
8 other profiles, because we have a lot of missing data.

9           And so what we want to show the members is that an  
10 eight-loci profile is not sufficient for identity because, in  
11 fact, there are a lot of people who match at eight different  
12 loci. And so it doesn't undermine the random match  
13 probability of each particularized loci that's been analyzed  
14 here. It doesn't undermine that math at all.

15           But I think it's -- a flip side of the coin to show,  
16 yes, at these eight particular locations, the random match  
17 probability is X. But we can find -- and I'll just say  
18 100,000 profiles in the database that match it at eight locus  
19 associations. And so you need to take that into consideration  
20 when thinking about whether or not eight markers out of 13 is  
21 enough. And it goes -- that would certainly go to the weight  
22 of the evidence that the jury would be -- and the members  
23 would be instructed on.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1           The -- the concern about duplicates and relationships,  
2 I think we saw that the Illinois State Police Laboratory  
3 reported that. They reported that there were duplicates.  
4 They were able to figure out which duplicates were present.  
5 Even if that is not part of the search that is run, certainly  
6 there will be that caveat language that, if the FBI -- again,  
7 and I'll make up this number -- reports 100,000 eight-locus  
8 associations, if they were to report that number, certainly  
9 the report could have the caveat that this has not been  
10 screened for duplicates, or that that number may contain  
11 duplicates or direct familial relationships. And so I don't  
12 think that should -- the existence of duplicates or the  
13 possibility of duplicates should -- should devalue our request  
14 in any way.

15           Ms. Grossweiler testified that our access to the  
16 database is prohibited by federal law. The only office that  
17 is prohibited from accessing the database is the Office of the  
18 Public Defender. So that's specifically -- specifically  
19 mentioned in 34 U.S.C. 12592(b)(3)(D). That is the DNA  
20 Identification Act of 1994, which has then been transferred to  
21 Title 34. The only excepted office that cannot have access is  
22 the Office of the Public Defender. And, in fact, the  
23 Secretary of Defense is included in those that can access the

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

1 database.

2           Now, I -- I recognize that we do not have a statutory  
3 right that exists like the one in Illinois. And I think in  
4 our pleadings Your Honor read the specific right of access  
5 that exists for defendants in Illinois to perform searches.  
6 We certainly don't have that in the DNA Identification Act,  
7 and I won't pretend that we do.

8           But what we do have is the statute allows for  
9 disclosure if -- and this is a quote -- if personally  
10 identifying information is removed for a population statistics  
11 database, for identification research, and protocol  
12 development purposes, and for quality control purposes. And  
13 again, that is 34 U.S.C. Section 12592(b)(3)(D).

14           And so what we are asking is that the court order the  
15 search pursuant to that particular subsection, understanding  
16 that all personal identifying information would be scrubbed.  
17 We would not receive any of that, so there should be no  
18 privacy concerns with Your Honor ordering such a search.

19           The only office, again, that is excepted from --  
20 specifically excepted from accessing the database is the  
21 Office of the Public Defender. That is not us. We certainly  
22 do fall under the Secretary of Defense's umbrella, and they  
23 were added as someone who can access and contribute to the

**UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT**

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 database in -- I believe it was 2012. So we do have a right  
2 of access, I believe, and certainly this commission has the  
3 authority to make that order.

4 And I recognize that we've heard some testimony that  
5 it might be an onerous search, that it might take time and it  
6 might take resources. But I think if the Illinois State  
7 Police Laboratory can do it, I certainly think the Federal  
8 Bureau of Investigation has the tools to do it.

9 And I don't think for a moment that Mr. al Nashiri's  
10 right of access in this capital case should yield because it  
11 might be a little hard for the government to do. So I don't  
12 think that should be a consideration for the commission. I  
13 think if the commission were to order it, it would certainly  
14 get done.

15 And so, Your Honor, to -- to sum up, I do believe we  
16 have a right of access. I certainly believe Your Honor has  
17 the authority to order such a search. I think it would  
18 absolutely assist the trier of fact in placing into context  
19 the strength of an eight-locus -- a partial profile, where the  
20 full profile would be 13.

21 This doesn't negate the science at issue. It  
22 certainly doesn't undermine the foundations at issue. The  
23 database is not going to explode. It's not going to alter

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 anything within the database to order this search. And again,  
2 I just want to emphasize I think it would be absolutely  
3 helpful to the trier of fact to have before it a partial  
4 profile and know how easily that can be found in the national  
5 database; that people are alike at eight-locus associations,  
6 nine-, and 10-, much more than they've probably ever thought  
7 possible.

8 And so that bears on the strength of this partial  
9 profile as it relates to identity. And in order to combat the  
10 government's random match probability and to offer another  
11 lens in which to view it, I think this data for the defense is  
12 absolutely necessary. Thank you.

13 MJ [COL ACOSTA]: Thank you.

14 DC [MS. CARMON]: Unless Your Honor has any questions.

15 MJ [COL ACOSTA]: Not at this time.

16 DC [MS. CARMON]: Thank you.

17 MJ [COL ACOSTA]: I'm going to allow you a chance to  
18 rebut, just so that you know, so -- Government, you may  
19 present argument.

20 ATC [MAJ ROSS]: Yes, Your Honor.

21 Judge, the motion should be denied for several  
22 reasons. First for foremost, it's not relevant. And that  
23 relevance determination boils down to a basic math problem;

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 that is a basic math problem that's recognized by the  
2 literature, it's a basic math problem recognized by the case  
3 law, and it's a basic math problem recognized by the forensic  
4 community.

5           The Arizona database that started this search, when  
6 they did -- that started this phenomenon, that noted this  
7 phenomenon, there were 1.5 trillion comparisons and they found  
8 19-locus -- loci match. And the bottom line is with those  
9 numbers, that is a figure that you would expect from random  
10 match comparisons.

11           Dr. Reich, Mr. Giusti were both in agreement that the  
12 "all v. all" numbers do not undermine the FBI's calculations.  
13 It does not undermine their formula. It doesn't undermine the  
14 practice.

15           Now, again, I mentioned the basic math problem is  
16 something that's recognized by the courts. Young v.  
17 United States, 63 Atlantic 3d, 1033, that's from the  
18 D.C. Court of Appeals in 2013, recognized this phenomenon.

19           In that case, they argued that an "all v. all" search  
20 was required to do the same thing, to place these figures into  
21 context. And the court in that case said such a simple  
22 contrast is misleading and does not warrant astonishment. And  
23 the court noted again the, quote, basic mathematics of the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 inquiry.

2 In Dwyer v. State, that's out of Maine, the court  
3 there noted, the Maine Supreme Court, that an Arizona search  
4 has never been recognized as the basis for an expert opinion  
5 in a published decision. This commission should not be the  
6 first court to do that.

7 Additionally, the studies cited in the defense's  
8 briefings, first and foremost, the Kaye article by  
9 Professor Kaye, who is the law professor, his quote at  
10 page 164 in the "Trawling DNA, What is the FBI Afraid Of?"  
11 article, because he's written many of the articles, quote, the  
12 research to date gives little reason to doubt the adequacy of  
13 the existing models for computing multi-locus STR frequency.

14 Secondly, the national database, NDIS, is not a  
15 cross-section of the population. Again, you have duplicates.  
16 Anytime somebody gets a new conviction, as Ms. Grossweiler  
17 testified, they may give a second, third, or fourth sample.  
18 We don't know how many of those individuals are relatives.

19 Professor Kaye believes one-third or more of NDIS is  
20 comprised of folks that have a relative in that same system.  
21 We don't have a racial breakdown in that system that is  
22 consistent with the overall population as well. So the  
23 figures simply aren't relevant.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           Number two, there is no statutory authority for the  
2 FBI to perform this type of search. And I think it's  
3 important to note the federal DNA Identification Act -- we've  
4 identified this in our briefs, 34 U.S.C. Section 12592, that  
5 delegates to the FBI the authority to administer CODIS. The  
6 FBI is required pursuant to other laws to publish the ways  
7 that CODIS will be used and it made that publication at  
8 Volume 61, No. 139 of the Federal Register. That was back in  
9 July of 1996.

10           What I'm getting at, sir, is that if the FBI were to  
11 use this in a different fashion than what is provided in that  
12 Federal Register, then they would have to issue a new  
13 publication, a new -- provide for a new public comment period.  
14 And it's unknowable how long that process would take.

15           Defense counsel conceded that the basis for the cases  
16 granting such an "all v. all" search were all based on state  
17 law, specific state statutory provisions that provided for a  
18 defendant's right to access this information. Federal law  
19 doesn't have that. Federal law, the defendant is entitled to  
20 get information pertaining to his case, the samples he  
21 provided and anything collected at a crime scene related to  
22 a -- his particular case. And that's not what we have here,  
23 Judge.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           There is an unknown burden on the FBI to comply with  
2 this. It's unknown because CODIS isn't configured to run such  
3 a search. The numbers that are involved in the National DNA  
4 Index are exponentially greater than any state DNA index,  
5 including Illinois. So if you try to compare the Illinois  
6 situation to the national situation, again you're comparing  
7 apples to oranges.

8           I would like to point out for the court's attention  
9 something that's buried in the weeds in the Young case, Note  
10 103 in Young. The court in that -- at that note said that it  
11 could potentially take roughly ten months to do such a search.  
12 Now, if it's taking ten months to do that kind of search,  
13 Ms. Grossweiler testified that when you're running searches,  
14 you can't upload new information.

15           So if any search is being run that's taking a  
16 substantial amount of time, then all these agencies scattered  
17 throughout the country, state, local, and federal, are not  
18 allowed to upload their information. And that is a huge tool  
19 in law enforcement's tool kit. The metrics were given by  
20 Ms. Grossweiler, again, something like 41,000 hits, 41,000  
21 cases that were assisted every year with this system. If we  
22 shut it down, then what are going to happen to all of those  
23 cases?

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           Now, the defense also argues that such a search would  
2 show context to the validity of the numbers. They can show  
3 that through the results of the Arizona study itself. This is  
4 a phenomenon that's already been demonstrated ----

5           MJ [COL ACOSTA]: Slow down just a little bit. I'm  
6 getting a warning light. You should be getting it, too.

7           ATC [MAJ ROSS]: Oh. Yes, Your Honor.

8           MJ [COL ACOSTA]: Go ahead.

9           ATC [MAJ ROSS]: They can show that phenomenon in the same  
10 manner they showed it to you, Your Honor. They can cite the  
11 Arizona case, they can show Illinois cases, and they can let  
12 the jury assess that without opening the door to an order  
13 that's not permissible under the law, never been done before.  
14 This would truly be something extraordinary and without  
15 precedent. Never been ordered before by any court. This  
16 commission should not be the first one to do it.

17           Thank you, Your Honor.

18           MJ [COL ACOSTA]: Defense, rebuttal?

19           DC [MS. CARMON]: Thank you, Your Honor.

20           You certainly wouldn't be the first judge to order  
21 such a search. Now, you might be the first judge to order a  
22 search of the national database, but certainly this has been  
23 done before in Arizona and in Maryland.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           And the suggestion that we could just use the data  
2 that is already present, I believe the last search that was  
3 done was in 2016, so that data at this point is at least five  
4 years old. And those were databases that are not relevant  
5 here. The relevant database here is the national one. It is  
6 not -- we are not in Arizona state court. We're not in  
7 Maryland state court, or even Maryland federal court for that  
8 matter.

9           And I'm certain, depending on your ruling, that we  
10 might be asking ----

11           MJ [COL ACOSTA]: Let me just -- but do you need a  
12 specific area or a specific database in order to challenge the  
13 statistical occurrence?

14           DC [MS. CARMON]: The database that K470 and that K19 were  
15 uploaded to was the national database, and so that forms the  
16 basis of our request. Because if that's the database that the  
17 samples were originally run in, the data from that database  
18 would be most relevant in this case, meaning the "all v. all"  
19 data from the same database as the analysis would be the most  
20 relevant. And so that was why we requested the national  
21 database.

22           MJ [COL ACOSTA]: Okay.

23           DC [MS. CARMON]: And certainly, it may come to -- we are

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 asking to use old data if this commission does not order the  
2 search that we have asked for.

3 But there is a large difference, and I think we can  
4 all agree that we could tell the members about a study that  
5 was done, or a search that was performed six, seven, eight  
6 years ago and here's what was found. But showing them real  
7 numbers that are relevant to the same database in which the  
8 government proffers their evidence is just much stronger and  
9 it's certainly much fresher.

10 And Dr. Giusti said -- one of the questions he was  
11 asked was: Is this relevant in your line of work? And he  
12 answered no. And I would submit to Your Honor that it's  
13 certainly relevant in ours as the folks who were charged with  
14 trying to explain the government's proffered evidence and this  
15 random match probability statistic that seems astronomical.

16 And especially because forensic evidence has an aura  
17 about it. And I think we can all agree that members and  
18 jurors alike believe that DNA is infallible, and certainly we  
19 will do our best to educate them that that is not true. But  
20 forensic evidence does come in with a bit of an aura of  
21 infallibility.

22 In this case, the government intends to, I believe,  
23 proffer the evidence in its case in chief using it to show

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 where our client was or was not on any given day, in any given  
2 location. I also believe that they intend to use it as  
3 corroborative evidence in order to admit hearsay statements  
4 through AE 166. So I believe that there are two places where  
5 it's very important, one particularly that the members will  
6 hear about.

7           And in our line of work, in order to combat this big  
8 statistic and to combat the government's use of this partial  
9 profile, the data derived from the "all v. all" search, in the  
10 same database as the samples themselves were run, I think is a  
11 powerful tool for us to ask the members to consider the  
12 relative strength of a partial profile and consider the fact  
13 that Mr. al Nashiri may match some of these -- if we have the  
14 data, may match some of these folks at the missing loci, but  
15 that it is not rare, in fact, to find eight-locus or  
16 nine-locus or 10-locus associations.

17           And even though that's an expected result,  
18 statistically speaking, and scientifically speaking, I'm going  
19 to go out on a limb and guess that the members won't be  
20 thinking about that and that they won't know that. I  
21 certainly didn't until I began to delve into this.

22           And so I do think it's powerful context to place this  
23 particular partial profile into -- that's readily accessible,

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 I think it's much more accessible to a layperson than a random  
2 match probability. And so even though it does not undermine  
3 that statistic, and I think the government will certainly  
4 present it and explain what it is, being able to tell the  
5 members you've got an eight-locus partial profile, you're  
6 missing five loci from what was then a full profile -- and we  
7 can run the database where Mr. al Nashiri's reference sample  
8 was run and where the evidentiary sample was run and we find  
9 100,000 places -- or profiles that match at eight locuses.

10 MJ [COL ACOSTA]: But there are none that match those  
11 eight loci right now, correct? I mean ----

12 DC [MS. CARMON]: Those specific ----

13 MJ [COL ACOSTA]: Those specific eight loci, none match  
14 it.

15 DC [MS. CARMON]: As far as we know, that's correct. But  
16 again, we're missing a lot of data. We're missing five data  
17 points, which could exclude him.

18 And so when people -- the point is that partial  
19 profiles are not rare -- or excuse me, people who match at  
20 partial profiles are not rare. And that is important for the  
21 members to understand, because the government is going to say,  
22 look, nobody else matches Mr. al Nashiri, nothing else  
23 matches, it's the only association that was made.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1           But this statistic or this data explains the missing  
2 data. It says, look, we can search the database against  
3 itself. There are people that match at eight. There are  
4 people that match at nine. We're missing five data points.  
5 And so see how not strong, see how weak a partial profile  
6 actually is, because we're a lot more alike than we are  
7 different.

8           And so I think that data, I think -- and I think it's  
9 accessible for lay people. I think that's an easier  
10 explanation for the layperson. I think in order to properly  
11 combat the government's forensic evidence and their random  
12 match probability statistic, that is large.

13           We need this data. And again, I'll reiterate that I  
14 think we have the right of access to it. I certainly think  
15 the commission has the authority to order it. I recognize it  
16 might take some work on the part of the FBI, but I don't  
17 imagine that if the commission ordered it, the FBI would tell  
18 you it's too much work. And I don't think there is too much  
19 work when we're talking about a man's life.

20           And so we would submit to Your Honor that you've got  
21 everything you need.

22           MJ [COL ACOSTA]: Again, you're not asking for any testing  
23 of anything to do with any of the evidence collected in this

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 case. You're asking for, essentially, an experiment to be run  
2 on the national DNA database to see how many of those  
3 individuals -- or how many samples within that -- or how many  
4 of the 20 million samples have matches at various different  
5 loci, whether -- and that's depending on the size of the  
6 profile in each one, because some of those are partial, right?  
7 Because nothing goes in unless there's eight matches ----

8 DC [MS. CARMON]: Correct.

9 MJ [COL ACOSTA]: ---- to begin with. So anywhere between  
10 eight and 20.

11 DC [MS. CARMON]: And we ----

12 MJ [COL ACOSTA]: You want to run the samples of 20  
13 million samples that run from eight loci to 20 loci and see  
14 how many match at the eight, nine and 10 level, that have  
15 nothing to do with the accused, but just to have an idea, to  
16 run an experiment, and -- I'm hesitant to say, but like  
17 essentially the beginning of somebody's academic paper on what  
18 would be the matches at those -- at those levels, at those  
19 eight, nine and 10 levels, correct?

20 DC [MS. CARMON]: I recognize that we are not asking for a  
21 specific loci to be run as was run ----

22 MJ [COL ACOSTA]: I know. You're not saying to run  
23 the ----

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 DC [MS. CARMON]: That's right.

2 MJ [COL ACOSTA]: ---- eight that he matched at.

3 DC [MS. CARMON]: But I do actually think this data is  
4 very relevant to the fact that -- and again, if Mr. -- or,  
5 excuse me, if the K470, if the evidentiary sample were a full  
6 robust profile and there was a full-profile-to-full-profile  
7 comparison with Mr. al Nashiri's reference sample, we wouldn't  
8 be asking for this, because that would be sufficient for  
9 identity.

10 And so I do think it's absolutely relevant that we  
11 give the members this data from the "all v. all" search,  
12 because what they are dealing with is an eight-locus partial  
13 profile.

14 So, yes, Your Honor is correct. We are not asking for  
15 K470 to be run anywhere, but what we want to show is that an  
16 eight-locus association is not sufficient for identity. And I  
17 think the frequency with which you find people matching at  
18 eight or nine or 10 demonstrates that. And so I do think it's  
19 relevant because we're dealing with a partial profile here.

20 MJ [COL ACOSTA]: Understood. Okay. Thank you.

21 DC [MS. CARMON]: Thank you.

22 MJ [COL ACOSTA]: The court is going to take -- the  
23 commission will take all of this into consideration before

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 issuing a ruling.

2 Counsel, my plan, given the hour, is to recess for the  
3 day and start again tomorrow given the -- I think the length  
4 of the time that we're going to take on the next issue, unless  
5 you think that we should start today. And I think,  
6 Government, it's your burden for tomorrow, correct?

7 ATC [MAJ ROSS]: Your Honor, I think it would be important  
8 to determine whether or not a hearing is even -- Judge, I  
9 think would be important to determine whether or not a hearing  
10 is even necessary on the Daubert issue and, if so, what  
11 specific issues are being contested.

12 As noted in our brief, we don't think a Daubert  
13 hearing is necessary on forensic DNA analysis under this  
14 methodology. Even Dr. Reich conceded that this is used  
15 everywhere, that it's generally reliable. And I think every  
16 case -- every court that's ruled on it, has ruled the same.

17 Under Daubert, there is no formal right to an  
18 evidentiary hearing. That's recognized in the McCluskey case  
19 that they cited, that you can essentially take judicial notice  
20 on something like this. So that's what we would ask the court  
21 to do.

22 MJ [COL ACOSTA]: To deny the hearing?

23 ATC [MAJ ROSS]: Yes, sir. To rule on -- to rule on the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 merits based on what's already been submitted.

2 MJ [COL ACOSTA]: Defense?

3 DC [MS. CARMON]: Yes, Your Honor. I -- I think the  
4 McCluskey case gives the commission the roadmap to at least  
5 grant an evidentiary hearing.

6 What we are asking the court to do and one of the  
7 points that we made in our brief and in our reply is we  
8 believe this to be low-copy number testing, which the  
9 McCluskey court finds is unreliable for four reasons, and  
10 those are obviously laid out in our reply.

11 We believe this to be low-copy testing based on the  
12 quantity of DNA being less than 1 nanogram. And if that is  
13 so, then there are steps that should have been taken,  
14 precautions that should have been taken. There are  
15 well-documented risks associated with low-copy number testing  
16 and the fact that this is, one, a partial profile, a  
17 complicated mixture, and we started with a very minuscule  
18 amount of DNA, I think the McCluskey decision gives the court  
19 at least enough to grant an evidentiary hearing to work out  
20 some of these issues.

21 We are not contesting PCR/STR testing. That's --  
22 that's not what we're doing. What we're saying here is that  
23 low-copy number testing occurred here which is suspect and the

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 court should grant a hearing based on that to determine  
2 whether it -- whether ----

3 MJ [COL ACOSTA]: Does that rise to admissibility or does  
4 that rise to weight?

5 DC [MS. CARMON]: That's admissibility, Your Honor.  
6 That -- the McCluskey court found that this was ----

7 MJ [COL ACOSTA]: Because it was -- because McCluskey  
8 talking about the unreliability of the low ----

9 DC [MS. CARMON]: Yes, sir.

10 MJ [COL ACOSTA]: ---- quantity testing?

11 DC [MS. CARMON]: Yes, sir.

12 MJ [COL ACOSTA]: All right. Thank you.

13 DC [MS. CARMON]: Thank you.

14 MJ [COL ACOSTA]: I'm going to permit the -- the hearing  
15 on the Daubert issue. And tomorrow you have, Government,  
16 you -- correct me. I think I've -- throughout the day have  
17 lost the bubble on how many witnesses you have.

18 ATC [MAJ ROSS]: Yes, sir. We have one witness, sir.

19 MJ [COL ACOSTA]: One witness? Okay.

20 Defense, same?

21 DC [MS. CARMON]: Yes, Your Honor. We would call  
22 Dr. Reich in rebuttal if necessary ----

23 MJ [COL ACOSTA]: All right.

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT

1 DC [MS. CARMON]: ---- or in our case if necessary.

2 MJ [COL ACOSTA]: Okay. All right. We'll start up with  
3 that tomorrow given I think we've heard enough about the DNA  
4 today. We'll start again with that tomorrow at 0-9 as well.

5 All right. Is there anything else to take up before I  
6 recess the commission for today? Government?

7 ATC [MAJ ROSS]: Nothing from the government.

8 MJ [COL ACOSTA]: Defense?

9 LDC [MR. NATALE]: Nothing from the defense, Your Honor.

10 MJ [COL ACOSTA]: All right. Thank you all. I will see  
11 you all tomorrow at 0-9.

12 Commission is in recess.

13 [The R.M.C. 803 session recessed at 1620, 07 December 2021.]

14 [END OF PAGE]

15

16

17

18

19

20

21

22

23

UNOFFICIAL/UNAUTHENTICATED TRANSCRIPT