

## Testimony of Judith Floyd

DIRECT EXAMINATION

18

19 BY MR. GREG DAVIS:

20 Q. Ma'am, would you please tell us your  
21 full name.

22 A. Judith Irene Floyd.

23 Q. Ms. Floyd, how are you employed?

24 A. I am the forensic laboratory  
25 supervisor at Gene Screen in Dallas.  
Sandra M. Halsey, CSR, Official Court Reporter  
3106

1 Q. Okay. What is Gene Screen?

2 A. Gene Screen is a DNA identity testing  
3 laboratory. We do identity testing in three areas: One  
4 would be genetic analysis; the other would be paternity  
5 testing; and the third one would be forensic analysis.

6 Q. How long have you been with Gene  
7 Screen?

8 A. Seven and a half years.

9 Q. All right. Would you tell us briefly  
10 about your educational and professional background that  
11 entitles you to hold your present position?

12 A. I have a degree from the University of  
13 Texas at Dallas in Molecular Biology. I have three years  
14 experience prior to Gene Screen in a genetics testing  
15 laboratory doing cancer research.  
16 And that particular occupation  
17 actually required that I perform more DNA techniques than  
18 I do perform at Gene Screen.

19 Since joining Gene Screen, I have also  
20 attended four separate lab and lecture courses for  
21 instruction on RFLP analysis and PCR methods, which would  
22 be DQ-Alpha, polymarker, D1S80 and STRs, which are all  
23 techniques that we've employed in crime scene  
24 investigation.

25 Q. Okay. What are your present duties at  
Sandra M. Halsey, CSR, Official Court Reporter  
3107

1 Gene Screen?

2 A. My present duties at Gene Screen are  
3 teaching other forensic analysts that come into the

4 laboratory, and I have also been to South America on  
5 three occasions teaching technicians at that particular  
6 locale how to do these techniques also.

7 I perform case work myself, and I am  
8 also supervisor of the laboratory, which means that I am  
9 responsible for the overall running of the laboratory

10 itself, responsible for testimony, and I am involved in  
11 the incorporation of new DNA testing methods at Gene  
12 Screen.

13 Q. Okay. How long have you actually been  
14 performing DNA analysis?

15 A. A little over 10 years.

16 Q. All right. Can you give us an idea of  
17 the number of cases in which you have actually done this  
18 DNA analysis?

19 A. That would be approximately 600 cases  
20 and that would involve a little over 4,000 samples.

21 Q. All right. And, over the last 10  
22 years, have you had occasion to testify as an expert in  
23 court before?

24 A. Yes, I have.

25 Q. And, in how many cases have you  
Sandra M. Halsey, CSR, Official Court Reporter  
3108

1 testified previously?

2 A. As far as cases, I'm not sure, but as  
3 far as times in court, that would be about 70. And the  
4 cases themselves would be less than 70, simply because

5 some of these may have been in pre-trial hearings and  
6 then the actual testimony at the trial itself.

7 Q. Okay. In what type of cases is DNA  
8 analysis used?

9 A. DNA analysis is used in sexual assault  
10 cases, homicide, it may be involved in a hit and run  
11 case, assault, missing persons, incest cases.

12 In civil cases it may be incorporated  
13 in a paternity suit, identity testing, involving,  
14 discerning whether or not the cells from the slide from  
15 which a diagnosis has been rendered to the blood of a  
16 patient, just to make sure that the cells on the slide do  
17 indeed belong to that patient.

18 Insurance companies are also  
19 incorporating more and more DNA testing in their suits.

20 Q. All right. I want to go -- let's just  
21 go to square one here. And explain to me what DNA is.

22 A. DNA is a substance that is found  
23 within the cells of your body. This particular substance  
24 is our genetic code or the information contained within  
25 our cells that makes us the unique individuals that we

1 are.  
2 The coding, or the message on that DNA  
3 is what causes you to have blue eyes or brown eyes, it  
4 causes you to be short, curly hair, your skin color, it  
5 determines whether you have type A blood or type O blood.  
6 All of our physical characteristics  
7 that we can see and those that we cannot see is  
8 determined by the message that is incorporated on our DNA  
9 strands.  
10 Many of you have heard of DNA referred  
11 to as chromosomes. That is a form of DNA. And we  
12 actually look at the chromosomes within the cells, look  
13 at specific sites to obtain information in order to  
14 determine whether or not a person could be a donor of a  
15 biological specimen of some sort. And the reason we can  
16 do that, is because the DNA in each of your cells, within  
17 the individual, is the same.  
18 For instance, the DNA in your skin

19 cell, is the very same as the DNA in your blood cells.  
20 The DNA in your hair is the same. But your DNA is  
21 different from the individual sitting next to you.  
22 That is why we can incorporate this  
23 type of testing in forensic analysis and match known  
24 blood specimens of a victim or a suspect to specimens  
25 that may have been found at the crime scene.  
Sandra M. Halsey, CSR, Official Court Reporter  
3110

1 Q. Okay. For instance, if you had a  
2 sample of my blood, from my blood, could you get my  
3 genetic code, my DNA code?  
4 A. Yes.

5 Q. Okay. And my code would be different  
6 than yours and different than anyone else in the  
7 courtroom or in the world, correct?

8 A. That is true, unless you had an  
9 identical twin.

10 Q. All right. So, would it be fair to  
11 call this, in a way, like a genetic fingerprint then that  
12 is unique to each individual?

13 A. That would be fair.

14 Q. You've mentioned when you talked about  
15 Gene Screen you went through a lot of letters. You told  
16 us about RFLP, PCR, and DQ-Alpha and D1S80. And I want  
17 to go through those in just a little bit more detail.

18 Are those types of DNA tests that are available to be  
19 run?

20 A. Yes, they are. There are actually two  
21 general categories. And then subtesting categories, you  
22 might say, under the heading of PCR.

23 Q. Okay. What would be kind of the three  
24 major categories then if we look at it?

25 A. We look at actually two major  
Sandra M. Halsey, CSR, Official Court Reporter  
3111

1 categories. One is RFLP analysis and that is what you  
2 may have referred to as DNA fingerprinting.

3 Q. Okay.

4 A. The PCR analysis is another type of  
5 testing and it actually has some subgroups which we will  
6 talk about also.

7 Q. Okay. All right. So, we have got  
8 these two worlds. We have got the RFLP world and then we  
9 have got this PCR world, right?

10 A. Correct.

11 Q. All right. Just briefly, if you are  
12 going to do an RFLP test, a DNA test using that method,  
13 what exactly are you looking at on the genetic code?

14 A. If you are going to performed an RFLP  
15 analysis, you are looking at different length of  
16 fragments that are generated by cutting your DNA with,  
17 what we call, molecular scissors, they are enzymes.  
18 And they read the DNA code and they  
19 cut at specific sites according to what they are reading  
20 along the code. And every individual has specific links  
21 that are generated by applying this enzyme to their DNA.  
22 And it is those links, that we then examine and compare  
23 to some other substance.

24 Q. Would it be kind of like -- a DNA  
25 strand being kind of like a ladder here in the courtroom,  
Sandra M. Halsey, CSR, Official Court Reporter  
3112

1 and you go in with these molecular cutters and on mine,  
2 for instance, the first cutter may cut the first rung of  
3 that ladder out, the second cutter may do another rung

4 and on and on and on, and you can identify those rungs as  
5 you look at it; is that right?

6 A. That's correct. You can compare it in  
7 that manner or even to a strand of beads. And it may cut  
8 six links out of one strand for one person and three  
9 links out of another person.

10 Q. All right. So, that would be in the

11 RFLP world. Now, the PCR world, that is different, isn't  
12 it?

13 A. That is a different technique.

14 Q. Okay. Just within the general

15 overview of PCR, how do you do that, as opposed to going

16 in there and actually cutting different strands along

17 there? What do you do with the PCR?

18 A. With PCR you already typically have

19 very small strands of DNA. You may be working with

20 degraded DNA, or DNA that has been broken down into very

21 small pieces through exposure to bacteria, to sunlight or

22 other factors such as moisture and humidity.

23 You actually amplify the DNA at a

24 certain site on the DNA. You want to look at a type or

25 a -- some sort of information at a specific site on a

Sandra M. Halsey, CSR, Official Court Reporter

3113

1 DNA, but you may not have enough. So you amplify it and

2 it's copied, many, many times, millions of times. It's

3 very similar to placing a sheet of paper on a copying

4 machine and setting the cycle to 100 copies.

5 All of your copies are going to be

6 exact duplicates of your original, and that is

7 essentially what we do with the PCR method. We're

8 actually copying a particular area on the DNA, obtaining

9 many, many copies and then we're looking at this

10 amplified DNA as to what type an individual may have.

11 Q. Would one of the advantages of PCR be

12 that you need less of a sample in order to do your

13 testing?

14 A. That is definitely an advantage.

15 Q. Okay. So you actually need more

16 material, more DNA material to do the RFLP, right?

17 A. Yes.

18 Q. Now, at Gene Screen, as you look at

19 the PCR, do you basically, or do you primarily do PCR

20 testing at Gene Screen or do you do both?

21 A. I do both, but primarily PCR analysis.

22 Q. All right. Well, let's talk about the

23 PCR then. Within the PCR family, do you have, what I am

24 going to call, DQ-Alpha testing, and then do you have

25 this D1S80 testing over here within the PCR family?

Sandra M. Halsey, CSR, Official Court Reporter

3114

1 A. Yes, that is two of the four methods  
2 that we now incorporate.

3 Q. Okay. Is there another one called,  
4 STR, for instance?

5 A. Yes.

6 Q. Okay. Let's just stick with D1S80 and  
7 DQ-Alpha. What is going to be the basic difference  
8 between those two PCR tests?

9 A. The basic difference between those two  
10 tests, is that with DQ-Alpha analysis, your final product  
11 is going to be a strip with blue dots. And those blue

12 dots will be positive for whatever DQ-Alpha type may be  
13 present in a sample.

14 If you are performing D1S80 analysis,  
15 you're going to see the result in the form of discrete  
16 bands on a film.

17 And the final product is different as  
18 well as the methodology that you are incorporating. For  
19 instance, with DQ-Alpha you're actually looking at the  
20 difference in sequence, or a difference in coding along  
21 the DNA.

22 With the D1S80 method, you are looking  
23 at various lengths of DNA because those are due to tandem  
24 repeats or stuttering the D1S80 sequence. And that quite  
25 often varies from individual to individual.

Sandra M. Halsey, CSR, Official Court Reporter  
3115

1 Q. Okay. Are there some cases that you  
2 get, where you decide the DQ-Alpha testing would be best?

3 A. Yes.

4 Q. Are there other cases that you might

5 get in, where you may think that this other type of PCR  
6 testing, this D1S80 might be better?

7 A. Yes.

8 Q. Might there also be cases that you  
9 look at and you might decide that RFLP might be best for  
10 that job?

11 A. If I have a choice, and plenty of DNA  
12 so that I have the luxury of making that choice, yes.

13 Q. All right. In this particular case,  
14 Ms. Floyd, were several items submitted to you for DNA  
15 analysis?

16 A. Yes.

17 Q. And, did you receive items from

18 Charles Linch and Carolyn Van Winkle, of the Institute of  
19 Forensic Sciences in Dallas?

20 A. Yes, I did.

21 Q. Okay. Did you receive items from any  
22 other individuals?

23 A. Only Kathryn Long, Charlie Linch and

24 Carolyn Van Winkle.

25 Q. And when you received those items, did  
Sandra M. Halsey, CSR, Official Court Reporter  
3116

1 you sit down and try to decide what kind of testing that  
2 you wanted to do on those items?

3 A. Yes.

4 Q. In fact, did you and I, and you have a  
5 boss, Dr. Robert Giles there at Gene Screen?

6 A. Yes.

7 Q. Did we all sit down and try to decide  
8 what kind of testing you thought would be best for these  
9 items?

10 A. Yes, that's correct.

11 Q. All right. What kind of testing did  
12 you finally decide on for these items?

13 A. With this particular case we decided

14 D1S80 would probably be the preferred testing, using PCR  
15 analysis.

16 Q. Okay. Why did you finally choose to  
17 do D1S80 testing?

18 A. Well, we knew that these stains were  
19 most likely going to yield a possible mixture of three  
20 related individuals. If they are related, that means  
21 they are going to be sharing some banding pattern or some  
22 alleles because each child would inherit half of their

23 DNA from their mother, and the other half from their  
24 father. So there would be some commonality there that  
25 might complicate the testing method.

Sandra M. Halsey, CSR, Official Court Reporter  
3117

1 If you have mixtures present in a  
2 sample, that is DNA that is donated through blood from  
3 more than one individual, the strip method or DQ-Alpha is  
4 very hard to read.

5 If you have only one individual  
6 donating blood, it is fine. But if you have a mixture,

7 it's too difficult to discern what came from where. If  
8 you use D1S80 you have discrete bands generated by each

9 individual and you can best determine whether or not that  
10 particular person's DNA might be present in that  
11 specimen.

12 Q. Okay. Would a good analogy be that  
13 you have got three fingerprints from individuals within a  
14 family and their fingerprints are somewhat similar  
15 because they are all in the same family.

16 Is that what the alleles are,  
17 basically?

18 A. Similar.

19 Q. Okay. And when you talk about a

20 mixture, it may not be a good analogy, but I think of  
21 where you have one fingerprint and then over that you

22 might have another fingerprint that might obscure part of  
23 the first fingerprint. Is that what a mixture is  
24 sometimes in DNA terms?

25 A. It could be or you could share some  
Sandra M. Halsey, CSR, Official Court Reporter  
3118

1 points on one fingerprint, on your fingerprint that you  
2 would find also in the other one.

3 Q. And this D1S80, in essence, would it  
4 allow you to sort of separate these two fingerprints and  
5 look at them and determine whose fingerprint is where?

6 A. Yes. And you could determine also  
7 which points were actually shared between the  
8 individuals.

9 Q. When you receive samples out there at  
10 Gene Screen for testing, just walk us through the  
11 procedures that you use. What is the first thing that  
12 you do when you receive the samples, in this case, for  
13 instance?

14 A. The first thing that we do, is to  
15 establish the chain of custody, document how we receive  
16 the samples, from whom, what the samples were, assign a  
17 case number, and for each piece of evidence that is

18 applicable to this case, it also receives it's own  
19 individual accession number.

20 At that point, I will photograph the  
21 specimens before I begin work, and determine what type of  
22 testing method might be the best or what type of testing  
23 method may be the only type that I can use on that  
24 particular case.

25 It depends on the specimens, how much  
Sandra M. Halsey, CSR, Official Court Reporter  
3119



1 there is, what condition they are in and how fast someone  
2 would like to have some results.

3 Q. What procedures do you have out at

4 Gene Screen to prevent cross-contamination, you know,  
5 something happening where two samples get intermingled  
6 before you do the testing? What sort of safeguards do  
7 you have?

8 A. It's policy to open only one item of

9 evidence at a time. Never do I open two at a time. Open  
10 only one, take a picture, seal it back up. Open another  
11 one, take a picture, seal it back up.

12 After that, I then begin work on the  
13 specimen, and again, open only one at a time, cut it out,  
14 begin processing it. I open only one tube at a time if I  
15 have several tubes on a rack. I wear gloves. My  
16 utensils such as my forceps and my scissors are always,  
17 always cleaned between specimens.

18 We use aerosol resistant tips so that  
19 whenever I am pipetting from one solution into another,  
20 there is no carry-over by aerosol contamination.

21 Q. Okay. How long does the D1S80 test  
22 take to run?

23 A. Approximately three days.

24 Q. All right. So from the time that you  
25 are actually beginning that test to the finish when you  
Sandra M. Halsey, CSR, Official Court Reporter  
3120

1 get results, it's about three days; is that right?

2 A. That's correct.

3 Q. That test is actually run out at Gene  
4 Screen, correct?

5 A. Right.

6 Q. Okay. Let's say you have got a

7 sample, you have tested it using D1S80, what do you  
8 actually do to get a result that you can then report back  
9 to us? How do you do that?

10 A. What I do first is to remove a  
11 portion, for instance, of a blood stain, a very small  
12 amount from the blood stain. Remove the DNA from the  
13 white cells that are contained within that blood. I have  
14 a solution of DNA, I amplify it, copy it, as I mentioned  
15 a few minutes ago, obtain a tube of amplified DNA. I

16 then load this amplified DNA on acrylamide gel. And I  
17 need this acrylamide gel to enable me to visualize the  
18 different lengths of DNA that I have in that particular

19 sample.  
20 I do a silver stain which then will  
21 expose those particular DNA bands to me, and a film is a  
22 permanent record of this.  
23 At that point, we then analyze the  
  
24 results of the unknown, or the evidence specimen and  
25 compare that to known specimens, and determine whether we  
Sandra M. Halsey, CSR, Official Court Reporter  
3121

1 have an inclusion, or a match, or an exclusion.  
2 If you have an exclusion then you know  
3 that a particular individual could not have donated or  
4 could not have been the donor of whatever DNA or  
5 biological specimen you are looking at on the evidence.  
6 Q. Okay. So on the known sample, for

7 instance, where you know the contributor of that DNA,  
8 will that have a set length to it already?  
9 A. Yes. If you -- we always receive  
10 blood standards and that is what we call our known

11 sample, because we know the donor of that particular  
12 item. And we have, what we call, our reference, or our  
13 standard bands derived from that person's blood.  
14 Q. All right. So, when you are doing  
15 this comparison, do you actually have this standard band  
16 from the known, and then you can actually visualize -- do  
17 you visually see whether or not you have a got a match  
18 between the known and the unknown?  
19 A. Yes. You visualize it, and also  
20 you're comparing those bands to a ladder. When I say  
21 ladder, I mean the ladder that we use on the gel contains  
22 all of the allele sizes, or all of the band lengths that  
23 you are going to find generated from any sample.  
24 Then if it lines up with band number  
25 29, you know you have a 29. If it lines up with band  
Sandra M. Halsey, CSR, Official Court Reporter  
3122

1 number 14, you know you have a 14.  
2 Q. And how long have you actually been  
3 doing this, where you have actually looked at these bands  
4 and determined whether or not you have got a match where  
5 you can say, it's included, or you say, no, I don't have  
6 a match, I can exclude this as being the same? How long?  
7 A. For D1S80 testing for approximately  
8 three years, but it is very similar to comparing the  
9 results for RFLP analysis, and that I have been

10 performing for seven and a half years.

11 Q. Ms. Floyd, in this case, did you

12 receive from the folks over there at SWIFS, blood samples

13 identified as having come from Darlie Routier, Darin

14 Routier, Damon Routier and Devon Routier?

15 A. Yes.

16 Q. Okay. Would those then be your known

17 samples where you know the length that you are looking

18 for for each one of those individuals?

19 A. That's correct.

20 Q. Let me begin with items from a

21 T-shirt. Did you receive several blood samples

22 identified as having come from a T-shirt worn by the

23 defendant in this case?

24 A. Yes, I did.

25 Q. Okay. And did those samples come to

Sandra M. Halsey, CSR, Official Court Reporter

3123

1 you from Carolyn Van Winkle and Charles Linch of SWIFS?

2 A. Yes.

3 Q. Did you also receive several blood

4 samples identified as having come from inside 5801 Eagle

5 Drive in Rowlett?

6 A. Yes.

7 Q. Did those items come from Charles

8 Linch also?

9 A. Yes.

10 Q. Did you also receive several blood

11 samples identified as coming from a head hair, a sock, a

12 comforter, Reebok tennis shoes and a knife?

13 A. Yes.

14 Q. Okay. Who did you receive those

15 samples from?

16 A. Charles Linch.

17 Q. Okay. All right. Now when those

18 items come over, does Charles Linch or Carolyn Van

19 Winkle, do they actually have their SWIFS number assigned

20 to those items, when they come over there to you?

21 A. Yes.

22 Q. Okay. Just for reference sake,

23 starting with the comforter, did that come over as SWIFS

24 item No. 18?

25 A. Yes, it did.

Sandra M. Halsey, CSR, Official Court Reporter

3124

1 Q. Okay. The Reebok tennis shoes, did  
2 those come over as SWIFS items No. 103?  
3 A. Yes.  
4 Q. The knife, did that come over as SWIFS  
5 item No. 2?  
6 A. Now, the knife itself, I did not  
7 receive.  
8 Q. Okay. I'm sorry. The samples off of  
9 the knife?  
10 A. The samples from the knife. Those  
11 particular stains I have listed as No. 2.  
12 Q. Right. That is SWIFS item No. 2. And  
13 finally, the stains removed and sent to you from a sock,  
14 did those show to be SWIFS item No. 27?  
15 A. That's correct.  
16 Q. If we could, let's start with those  
17 items. If we could, we have the comforter that came over  
18 as SWIFS item No. 18. Can you tell us what the results  
19 of your DNA analysis was for the comforter items?  
20 A. Yes. The comforter, I had four  
21 stains, three of those stains typed as Devon, the fourth  
22 stain did not yield a result.  
23 Q. Okay. So you had four, three of them  
24 came back as matching Devon Routier, correct?  
25 A. Correct.  
Sandra M. Halsey, CSR, Official Court Reporter  
3125

1 Q. The fourth one, you didn't get a  
2 result. Is that uncommon that sometimes you get a stain  
3 and you can't get a result?  
4 A. No, it's not uncommon and using the  
5 D1S80 technique, if you retype the specimen, it's very  
6 likely you could get a result.  
7 Q. All right. So the three of them that  
8 you got a result, they all came back to Devon, correct?  
9 A. Correct.

10 Q. The Reeboks, SWIFS item No. 103, could  
11 you give us the results of your analysis, please?  
12 A. I worked with two stains from the  
13 Reeboks. Both of those came back as matching Darlie.  
14 Q. Okay. Two stains both matched Darlie  
15 Routier, correct?  
16 A. Right.  
17 Q. The samples off the knife, SWIFS item  
18 No. 2, what were your results there?  
19 A. I had four stains from the knife. Two  
20 of those stains matched Darlie Routier, one matched Damon  
21 Routier, and the fourth one contained a combination of

22 Darlie and Damon Routier.

23 Q. Okay. So two of them matched Darlie

24 Routier, one of them came back to Damon Routier and the

25 other one is a mixture; is that right?

Sandra M. Halsey, CSR, Official Court Reporter

3126

1 A. That's correct.

2 Q. And, is a mixture something that you

3 see also, from time to time? It's kind of like the two

4 fingerprints, one over another?

5

6 MR. DOUGLAS MULDER: Object to the

7 leading.

8 THE COURT: I'll sustain it. And

9 let's just phrase our questions properly.

10 MR. GREG DAVIS: Yes, sir, I'll do

11 that.

12

13 BY MR. GREG DAVIS:

14 Q. Is one of them a mixture then?

15 A. Correct.

16 Q. And finally, the sock, SWIFS item No.

17 27, what were your results?

18 A. I had six stains from the sock. One

19 stain typed as Damon Routier -- I'm sorry. Two of those

20 stains typed as Damon Routier.

21 Two typed as Devon Routier -- three

22 typed as Devon Routier. So two typed as Damon, three

23 typed as Devon Routier. The very last stain did not

24 type.

25 Q. Okay. What does that mean for the

Sandra M. Halsey, CSR, Official Court Reporter

3127

1 last sample? What does that mean?

2 A. I would just simply issue no result,

3 indicating that the first attempt to obtain results from

4 that one were unsuccessful.

5 Q. So five of the six you got results?

6 A. Right. That's correct.

7 Q. And on the sock, again, did you find

8 any samples that matched the blood of Darlie Routier?

9 A. Originally, when I had the sock, I

10 typed the toe, which gave a very faint typing matching

11 the D1S80 type of Darlie Routier.

12 Q. Okay. Do you have an opinion as a DNA  
13 analyst as to why that sample came back to Darlie Routier  
14 from the toe area? Do you have an idea of what you were  
15 actually seeing there?

16 A. When I was asked to test the sock,

17 there was an interest in who might have been the wearer  
18 of the sock. I tested the toe area, the heel area and  
19 the band of the sock. Which typically, is a site where  
20 you might obtain cells from the person having worn a

21 sock. And that is the reason that I chose that area, and  
22 it did not appear to have blood stains in that particular  
23 area.

24 Since I did obtain a faint typing, and  
25 quite often, if you're going to get the person who might  
Sandra M. Halsey, CSR, Official Court Reporter  
3128

1 have worn the sock, it's going to be fairly faint. And  
2 that is a possibility.

3 Q. Okay. Well, if -- as I wear  
4 something, do I actually lose skin cells as I wear  
5 something?

6 A. Certainly. Especially to clothing  
7 that may be closer to your body. For instance, around  
8 the collar of your shirt, the cuff of your sleeve, the  
9 binding area on your sock.

10 Q. Okay. From the socks I am wearing  
11 today, would you expect that at the end of the day that

12 you would actually be able to find my skin cells on this  
13 sock?

14 A. Yes, I would. The more stress you're  
15 under, the more cells I'm likely to find.

16 Q. You would probably see a bunch of them  
17 today then, right?

18 A. Yes.

19 Q. Would the same be true if I put this  
20 sock over my hand and wore it around all day and I am  
21 stressed? Would you expect to see my skin cells from my  
22 hand on that sock?

23 A. That is a possibility, yes.

24 Q. And from those skin cells left on my  
25 sock either from wearing it on the foot or on the hand,  
Sandra M. Halsey, CSR, Official Court Reporter  
3129

1 could you then extract DNA from those skin cells?

2 A. Yes, if there was sufficient there to

3 give a typing, I could, definitely.

4 Q. Okay. From the items that you tested

5 that we have gone over: From the comforter, the Reeboks,

6 the knife and the sock, from the samples where you got

7 results that you could report out, were there any

8 unidentified samples?

9 A. No.

10 Q. Ms. Floyd, if you would look at

11 State's Exhibit No. 122. And before you testified today,

12 did I have you look over samples shown on this board, and

13 did you initial the samples that you did the testing on?

14 A. Yes, I did.

15 Q. Okay. Would those include the two

16 samples listed as 105 here?

17 A. Yes.

18 Q. Would they also include the samples

19 that are marked as 110 and 111?

20 A. Yes.

21 Q. Did you do any testing on any other

22 items shown here on State's Exhibit 122?

23 A. Yes, I did.

24 Q. Is there an additional one here from a

25 vacuum?

Sandra M. Halsey, CSR, Official Court Reporter

3130

1 A. Yes.

2 Q. Okay.

3 A. Also, the hallway area.

4 Q. All right. We see 1, 2, 3, 4, 5 along

5 the wall of the family room. You also tested those; is

6 that right?

7 A. That's correct.

8 Q. And are the three on the hallway, what

9 I am going to call the entry hallway, that you did

10 testing on also?

11 A. Yes.

12 Q. The sample that you tested off of the

13 vacuum cleaner, what was the result of that, that

14 analysis?

15 A. The spot of blood I removed from the

16 vacuum cleaner matched Darlie Routier.

17 Q. Did you actually take that sample

18 yourself?

19 A. Yes, I did.

20 Q. Where on the vacuum cleaner did you

21 take that sample?

22 A. It was taken on the plastic casing

23 just above the left wheel.

24 Q. The samples that I just showed you on  
25 State's Exhibit 122, besides initialing for the sample  
Sandra M. Halsey, CSR, Official Court Reporter  
3131

1 itself, are the results shown on that board, are they  
2 true and correct?  
3 And do they correspond with the  
4 results that you found when you sampled and you tested  
5 those samples?

6 A. Yes, they do.

7 Q. Ms. Floyd, again, now looking at  
8 State's Exhibits 120 and 121, before you testified today,  
9 have you also gone through all the samples shown in these  
10 two photographs and have you identified the ones that you  
11 actually tested?

12 A. Yes.

13 Q. Have you now initialed all the samples  
14 that you tested as shown on State's Exhibit 120 and 121?

15 A. Yes.

16 Q. Are the results shown on these boards  
17 accurate? Do they correspond to the findings after your  
18 DNA analysis of the samples?

19 A. Yes, they do.

20 Q. With regards to the samples from  
21 inside the house that you received to test, with regards  
22 to all of the samples where you got a result, were there  
23 any unidentified samples after your testing?

24 A. None of the blood stains, no.

25 Q. Okay. You were able to identify the  
Sandra M. Halsey, CSR, Official Court Reporter  
3132

1 contributor on all of those?

2 A. Yes.

3 Q. How about with the samples that you  
4 tested from the T-shirt? With regards to samples where  
5 you got results, were there any unidentified samples?

6 A. No.

7 Q. Able to identify a contributor on all  
8 of those; is that right?

9 A. That's correct.

10 Q. DIS80, I don't know how to word this,  
11 but just how exact a test is that?

12 A. When performed properly, it's 100  
13 percent reliable.

14 Q. All right. You were talking about  
15 being able to exclude people or include people. What's  
16 the power of that test, you know, in percentages, if you



17 can? How would you express that?

18 A. In the general population, it's

19 approximately 96 to 98 percent power of exclusion or

20 power of discrimination.

21 Q. Okay. What do you mean by power of

22 discrimination?

23 A. The ability to discern between one

24 individual to another by using this particular

25 methodology.

Sandra M. Halsey, CSR, Official Court Reporter

3133

1 Q. Okay. So, what, a percentage of

2 accuracy of 96 to 98 percent? Is that what you're

3 talking about?

4 A. That's correct. Whenever you're using

5 the general public as a whole and this is a little bit

6 different in that we were trying to determine from a --

7 you might say, a group of three people if there was

8 something different other than the bands that were

9 generated by their bloods.

10 Q. Okay. What would you say the degree

11 of accuracy would be in this particular case with three

12 family members as possible contributors?

13 A. I would say that the power of

14 exclusion -- if you ran a sample and there were bands

15 that you could align, for instance, with Darlie Routier's

16 blood, but not with Devon Routier's, that means that

17 Devon is 100 percent excluded as being a donor of that

18 particular blood specimen. But Darlie would not be and

19 as to what percentage that would be would be based on how

20 rare or how common her pattern is.

21 Q. So, if you had a spot, would you be

22 able to determine 100 percent that it was not one member

23 of the family, you just can't be 100 percent that it's

24 the person that you think it is; is that right?

25 A. If you are looking at only three

Sandra M. Halsey, CSR, Official Court Reporter

3134

1 individuals, you would say that it was 100 percent

2 probability that it would be one of those three and not

3 the other two.

4 Q. Okay. Ms. Floyd, again, looking at

5 State's Exhibits 120 and 121. Again, I am drawing your  
6 attention here to, really, five samples. The sample

7 identified as T-10, the sample identified as T-9, the  
8 sample identified as LS1, LS3 and also the sample  
9 identified as T-15; have we accurately portrayed their

10 locations on that T-shirt with regards to the photographs  
11 on top?

12 A. Yes.

13 Q. Okay. These photographs are true and  
14 accurate depictions of where those particular samples  
15 came from; is that right?

16 A. That appears to be the case, yes.

17 Q. Okay.

18

19 MR. GREG DAVIS: Your Honor, I'll pass

20 the witness.

21 THE COURT: Mr. Mosty.

22

23

24

25

Sandra M. Halsey, CSR, Official Court Reporter  
3135

1 CROSS EXAMINATION

2

3 BY MR. RICHARD MOSTY:

4 Q. Ms. Floyd, I just wanted to cover a  
5 couple of things with you. You testified in some detail  
6 about the procedures that you use, that you personally

7 use, and I guess the other people at Gene Screen use to  
8 make sure that there is not a contamination of the  
9 samples?

10 A. Correct.

11 Q. And that was where you're talking

12 about separate gloves. Even if I were testing, for  
13 instance, a blood sample at different locations, you  
14 would change gloves even between those two samples?

15 A. Not always, no. But always the

16 scissors and the forceps that are used are cleaned for it  
17 to be free of any DNA so as not to have any carry-over.

18 Q. Okay. That was even if you were

19 taking one of those blood drops and a couple of samples  
20 off of it?

21 A. I never touch any of the sample with

22 my gloves.

23 Q. Okay. That is what I mean. And if

24 you were taking two samples off of one small drop, you  
25 take one sample, you would clean all of your instruments,  
Sandra M. Halsey, CSR, Official Court Reporter  
3136

1 you would go back and take the other sample off of that  
2 same drop?

3 A. If it was one drop, I typically would  
4 not extract two times from the same drop.  
5 Q. But if you did, the point of it is

6 that between every sample, you are going to clean your  
7 instruments, isn't that right?

8 A. Between every different sample, yes, I  
9 would clean my instruments. If I cut a sample off of a  
10 spot and then wanted to cut that sample into smaller  
11 pieces, I wouldn't clean it.

12 Q. Let's say that there was a spot this  
13 big, did you make the determination about where on that  
14 spot a sample should be taken? Or did somebody else  
15 already do that?

16 A. Most of the samples were given to me  
17 already excised.

18 Q. Okay.

19 A. From a larger spot.

20 Q. So someone else had selected that  
21 sample and brought it to you for testing?

22 A. Yes. Or the entire sample was given  
23 to me but it was too small to even approach the size that  
24 you were indicating.

25 Q. Okay. And I was really indicating  
Sandra M. Halsey, CSR, Official Court Reporter  
3137

1 that something out there at the scene might be that big  
2 and someone has gone in and taken a -- maybe one sample

3 or maybe a couple of samples and brought to you just that  
4 small sample?

5 A. That's right.

6 Q. And, of course, you have no control  
7 over how things are handled before you get them?

8 A. That's correct.

9 Q. You just have control over maintaining  
10 that you don't have contamination once it's there at Gene  
11 Screen?

12 A. That's right.

13 Q. Now, how, just in terms of trying to

14 get a grip on how sensitive these tests are, how much  
15 blood does it take for you to get a suitable amount to  
16 first amplify and then evaluate?

17 A. You can get a D1S80 result from a spot  
18 of blood amounting to the size of a pinhead.

19 Q. Okay. So, you could, did I take it

20 from that that you could even -- that these tests are so  
21 sensitive, that you could get a sample from something  
22 that you really couldn't see with the naked eye?

23 A. Well, if you are, for instance,  
24 testing an item of clothing, you are not going to see any  
25 skin cells.

Sandra M. Halsey, CSR, Official Court Reporter  
3138

1 Q. Right.

2 A. And quite often, if you have seminal  
3 fluid on a stain, you may not be able to see that.

4 Q. But as to blood, even if I took a pen  
5 point and dipped it on something, that blood spot might  
6 be so small that I couldn't even see it with my naked  
7 eye?

8 A. It is a possibility, but we do have  
9 the luxury of having some color to blood, so quite often  
10 we do see that.

11 Q. The point of that is that you are  
12 talking about very, very, small amounts that are  
13 necessary for you to do your testing?

14 A. Very small amounts, yes.

15 Q. And, so I guess, that would be one of  
16 the reasons that you are so concerned about  
17 contamination, wouldn't it be?

18 A. Certainly you are concerned about it,  
19 that's right.

20 Q. Just the slightest bit of touching of  
21 your instrument from one sample to another could bring,

22 could -- it's not going to change your result, but you're  
23 going to -- it would question maybe where that sample  
24 came from?

25 A. Well, actually studies have been  
Sandra M. Halsey, CSR, Official Court Reporter  
3139

1 performed in which an individual, for the purpose of the  
2 study, did not clean forceps or scissors between blood  
3 specimens, cut or several extractions, and they found no  
4 carry-over. But as good laboratory practice, certainly

5 we do always clean the instruments between cuttings.

6 Q. And, did you tell -- did you say that

7 you kept every item separate?

8 A. Yes.

9 Q. That is the way you would like to

10 receive them, is it not?

11 A. That is the way I typically do receive

12 them.

13 Q. You don't have, for instance, two

14 bloody rags in one bag?

15 A. No.

16 Q. And, you don't like that as a

17 scientist, you don't -- wouldn't like to receive two

18 bloody rags like that, would you?

19 A. Well, that is not the ideal situation.

20 Q. And the reason for that is that blood

21 from one might get on to the other?

22 A. That is always a possibility.

23 Q. Okay. And, once that blood from one,

24 gets on to another, from your standpoint, you can still

25 say, that that is so and so's blood, but you can't say

Sandra M. Halsey, CSR, Official Court Reporter

3140

1 with certainty that -- which of the rags it came from?

2 A. Well, that depends on the appearance

3 of the stain, when it arrives, that might be.

4 Q. Let's go back to this. Well, let me

5 go at it this way: Let's say that first, the stain is on

6 this rag, and then there is a different stain on this

7 rag, and they are thrown together.

8 A. Okay.

9 Q. And they would have the opportunity to

10 transfer the blood from the first rag to the blood from

11 the second rag.

12 And, then in fact, do. And you run

13 your test, and you can identify that one or two people,

14 or whatever you find, but you would not be able to

15 identify with certainty that the sample you got

16 originally started on the first rag.

17 A. Well, you would think that the sample

18 that was there originally, would type stronger. And we

19 do see that. Whenever you have mixtures, the lesser

20 component will give a fainter banding pattern.

21 Q. Of course, I guess that depends upon

22 how much of that blood gets transferred?

23 A. In your hypothetical situation, yes.

24 Q. Okay. Um-hum. (Attorney nodding head

25 affirmatively).

Sandra M. Halsey, CSR, Official Court Reporter  
3141

1 And, that would also be true of a  
2 particular item. That is, for instance, has blood on one  
3 side and is folded over and has blood on the other side.  
4 And then a sample is brought to you.  
5 Was the blood that was originally on  
6 one side of the shirt could have ended up on the other  
7 side of the shirt?

8 A. If it was soaked all the way through,  
9 is that what you are asking me?

10 Q. Yeah, if there is enough blood, if it  
11 were soaked enough or if there is enough blood, or it  
12 stays long enough to where the blood from one side  
13 actually causes blood on to the other side, then your  
14 results would still be accurate, but you couldn't verify  
15 where that blood had originally been?

16 A. That's true.

17 Q. You were asked to test some facial  
18 hair as well, were you not?

19 A. Yes.

20 Q. Do you know where that facial hair  
21 came from, where it was located at the scene?

22 A. The best of my knowledge, I believe it  
23 was from a rug, but I am not sure where the rug itself  
24 was located.

25 Q. Okay. And, the results of your DNA  
Sandra M. Halsey, CSR, Official Court Reporter  
3142

1 testing of that head hair showed you what? I'm sorry.

2 Was it a head hair or do you know?

3 A. Facial hair.

4 Q. Facial hair?

5 A. That's right.

6 Q. Okay. The results of that was what?

7 A. The result of that particular facial  
8 hair was that it did not match any of the three  
9 individuals in this case.

10 Q. Okay. And, also did not match Darin  
11 Routier either, did it?

12 A. That's correct.

13 Q. Okay. So that is an unknown facial  
14 hair? Unidentified is maybe a better word?

15 A. Yes.

16 Q. Okay. When did you first start doing

17 your testing?

18 A. In this particular case?

19 Q. Yes.

20 A. Our first specimens were received

21 September, September 18.

22 Q. Okay. And, you issued reports when?

23 December?

24 A. December 2nd and the second report on

25 January the 7th.

Sandra M. Halsey, CSR, Official Court Reporter  
3143

1 Q. The second report is the day after

2 this trial started?

3 A. Correct.

4 Q. Okay. Now, you testified about a sock

5 and you did not detect, your statement was you did not

6 detect anyone's blood on the sock except for two

7 locations of Damon and three of Devon?

8 A. I believe that's correct.

9 Q. And one was a no result?

10 A. That's right.

11 Q. How do you get these no results?

12 A. No result means that there was no

13 banding pattern that was generated from the amplification

14 of the sample or there was no amplification, in other

15 words.

16 Q. Okay. And, from a no result, I guess

17 you can draw no conclusions whatsoever?

18 A. That's correct.

19 Q. Now, you also said -- you testified

20 about a faint DNA sample. What was that?

21 A. From the sock?

22 Q. From the sock.

23 A. From the testing of the toe area there

24 was a very faint pattern generated which was the same as

25 that generated by Darlie Routier's blood.

Sandra M. Halsey, CSR, Official Court Reporter  
3144

1 Q. Okay. But that could also be the same

2 as her skin?

3 A. Correct.

4 Q. And that could be the same as her

5 saliva?

6 A. Correct.

7 Q. So, if some assailant had that sock in

8 his hand and stuffed it or tried to stuff it in her

9 mouth, that could leave that kind of result?

10 A. It's a possibility.

11 Q. If an assailant had that sock in his

12 hand and contacted her skin, it could have that kind of  
13 result?

14 A. Well, I would think that would have to

15 be pretty hard contact in order to obtain those skin

16 cells, yes. But then you might also obtain skin cells

17 from his hand applying the same pressure.

18 Q. Right. And you don't know -- I guess

19 you don't know how long that kind of cell could be on a  
20 sock?

21 A. No.

22 Q. And there is no way to tell that?

23 A. No.

24 Q. If someone had handled that sock, I

25 guess if they had picked it up, they could have their

Sandra M. Halsey, CSR, Official Court Reporter

3145

1 skin cells on it?

2 A. Well, you wouldn't expect such a light

3 pressure just picking it up to pose a problem. Contact

4 would be slight and it would be light.

5 Q. Well, you -- this was a faint result,

6 wasn't it?

7 A. Yes, but, that is not uncommon for a

8 typing from an item of clothing that has been worn by

9 someone, because you are not going to get very many cells

10 that type very strongly.

11 Q. I'm just using your words. You called

12 it in your report a faint result, didn't you?

13 A. That's correct.

14 Q. That could be consistent with any

15 number of contacts between skin or saliva and that sock?

16 A. Well, based on my experience, it's

17 takes more than just a light contact such as picking up a

18 sock.

19 Q. Well, you know, you don't know how

20 someone picks it up, do you?

21 A. No, not by the way I pick it up and by

22 the way I have seen most people pick up a sock that

23 looked like that. I would think it would be a light

24 touch.

25 Q. Okay. Now, you had a -- you did

Sandra M. Halsey, CSR, Official Court Reporter

3146



1 the -- did you do a saliva swab on Sarah Jones?  
2 A. Yes, I did.  
3 Q. And were you the one that determined  
4 that her head hair was not -- that the sample that was

5 thought to be Darlie Routier's sample was, in fact, Sarah  
6 Jones'?

7 A. That's correct.

8 Q. You made that determination?

9 A. Right.

10 Q. And, one thing, when you looked at  
11 that vacuum cleaner, were you able to see blood on it?

12 You took that sample, didn't you?

13 A. That's correct. I removed that

14 particular blood spot from the vacuum.

15 Q. That was something you were able to

16 visually identify as what you thought to be a blood spot?

17 A. Yes.

18 Q. Do you do presumptive tests on blood,  
19 or do you just --

20 A. No, I do not.

21 Q. -- wait until you get to the lab and  
22 make the determination that it's blood?

23 A. If -- a rust spot or paint spot, it's

24 not going to give any result with my testing.

25 Q. Now, did you do any testing on the  
Sandra M. Halsey, CSR, Official Court Reporter  
3147

1 maroon pillow?

2 A. On the pillow case, yes.

3 Q. Okay. That was maroon in color?

4 A. Yes.

5 Q. Okay. And the results of that were  
6 what?

7 A. I had three stains from the pillow  
8 case, one stain matched Damon Routier, two matched Darlie  
9 Routier.

10 Q. Okay. Those were on opposite sides of  
11 that pillow, weren't they?

12 A. I don't know. I did not cut the  
13 stains from the pillow case.

14 Q. Okay. So you can't tell where they  
15 originated?

16 A. Right.

17 Q. And, you tested some samples of the  
18 knife, No. 67, I believe it is?

19 A. That's correct.

20 Q. Okay. And the results of that were  
21 two, four locations?

22 A. That's right.

23 Q. None of which were Devon Routier?

24 A. None of those four stains, that's

25 correct.

Sandra M. Halsey, CSR, Official Court Reporter

3148

1 Q. And that would be consistent with

2 Devon Routier not having been stabbed with that knife?

3 A. No, that would just be consistent with

4 his blood not being in those four places that were

5 removed for my testing.

6 Q. So, in other words, all of these

7 testings are just somewhat a matter of hit and miss, that

8 you happen to pick up a spot or not pick up a spot that

9 has someone's blood on it?

10 A. Certainly his blood could have been

11 elsewhere on the knife and it was not removed from those

12 four swabbings.

13 Q. But you cannot say with any certainty

14 that his blood was on that knife at all, can you?

15 A. Not from those four swabbings.

16 Q. You do not know?

17 A. That's correct.

18 Q. So, it could be consistent that there

19 was maybe a spot of his blood on that knife, that could

20 be consistent?

21 A. Certainly.

22 Q. And it could be consistent that there

23 was none of his blood on that knife?

24 A. Unless any further testing was done

25 other than mine, yes.

Sandra M. Halsey, CSR, Official Court Reporter

3149

1 Q. Well, it could be either way, couldn't

2 it?

3 A. From my testing, yes.

4 Q. Well, that is the testing -- that is

5 what we have got, isn't it?

6 A. That's correct.

7 Q. Okay. Any other testing done on that

8 knife that you know of?

9 A. Not in my laboratory.

10 Q. What about that you know of? Do you

11 know of any other testing done on the blood samples on

12 the knife at all?

13 A. I don't know of any other.

14 Q. Okay. We don't know one way or

15 another then, and you have no ability to tell this jury

16 that Devon Routier's blood was on that knife?

17 A. Not from my four tests, no.

18 Q. Well, and that is the extent of your

19 knowledge, isn't it?

20 A. As far as the knife is concerned?

21 Q. Yes.

22 A. Yes.

23 Q. But, however you want to slice it, all

24 the evidence that you were able to pick up and analyze

25 was that Devon Routier's blood was not on that knife?

Sandra M. Halsey, CSR, Official Court Reporter

3150

1 A. Devon Routier's blood was not

2 contained in those four spots that were removed for my

3 testing.

4 Q. All right.

5

6 THE COURT: I think we have covered

7 the knife. Please, let's move on.

8 MR. RICHARD C. MOSTY: That's all.

9

10

11 REDIRECT EXAMINATION

12

13 BY MR. GREG DAVIS:

14 Q. Ms. Floyd, just two questions.

15 Besides the facial hair, were there any other

16 unidentified samples which you tested?

17 A. There was a pubic hair which I tested,

18 and no result was obtained from that hair.

19 Q. I guess I'm talking about samples

20 where you actually got a result that you could report out

21 any other unidentified samples?

22 A. No other samples.

23 Q. When the items that you were to test,

24 when they came over from SWIFS, were they separated from

25 each other?

Sandra M. Halsey, CSR, Official Court Reporter

3151

1 A. Yes.

2 Q. Okay.

3

4 MR. GREG DAVIS: No further questions.

5

6

7 RECROSS EXAMINATION

8

9 BY MR. RICHARD MOSTY:

10 Q. On those pubic hairs, you had known

11 samples of Darlie Routier's pubic hairs, didn't you?

12 A. No, I did not.

13 Q. You did not? Did you have any known

14 samples of any pubic hair?

15 A. No.

16 Q. Well, you knew, but you knew Darlie

17 Routier's DNA pattern? Or numbers, however -- whatever

18 you want to call that.

19 A. Her D1S80 type, yes.

20 Q. Right. And were you able to see --

21 were you able to have enough of the pubic hair to run a

22 DS180 test on that pubic hair?

23 A. From the unknown specimen that I

24 received?

25 Q. Right.

Sandra M. Halsey, CSR, Official Court Reporter

3152

1 A. There was a root, and therefore, that

2 is the portion that contains the DNA and it may have

3 issued a result, it may not. Hair gives a success rate

4 of about 60 percent.

5 Q. And yours was no result?

6 A. On that pubic hair, yes.

7 Q. So from that pubic hair, it, at least

8 for now, remains unidentified?

9 A. Correct.

10 Q. And, when you have NR on a test, or

11 your no result, that means on the test you ran, there was

12 no result?

13 A. That means no bands were generated.

14 No bands were visualized from the final product. That's

15 correct.

16 Q. And then you mentioned sometimes that

17 you would run second or third or more repeats?

18 A. Sometimes if you re-amplify a portion

19 of that particular specimen, it may give a result. It

20 may not.

21 Q. On the pubic hair you just ran the

22 ones -- on the two pubic hairs, on the root and the  
23 shaft, you ran the one test?

24 A. That's correct.

25 Q. With no result?

Sandra M. Halsey, CSR, Official Court Reporter

3153

1 A. That's correct

2

3 MR. RICHARD C. MOSTY: That's all I

4 have.

5 MR. GREG DAVIS: No further questions.

6 THE COURT: You may step down, ma'am.

7 Let's take a 10 minute break, please.

8 All right. Thank you for coming.

9 Watch your step off.